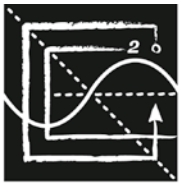
MINUTES OF THE PARTICIPATING ORGANIZATIONS LIAISON COUNCIL

March 2024



NCEES

Participating Organizations Liaison Council

Laura Sievers, P.E., Chair

The annual meeting of the Participating Organizations Liaison Council (POLC) was held Saturday, March 23, 2024, in Alexandria, Virginia. Laura Sievers, P.E., president of the National Council of Examiners for Engineering and Surveying (NCEES), presided.

NCEES Representatives

- Laura Sievers, P.E., NCEES president
- Andy Zoutewelle, P.L.S., NCEES president-elect
- David Cox, NCEES chief executive officer (CEO)
- Davy McDowell, P.E., NCEES chief operating officer (COO)
- Patricia Sheppard, NCEES executive assistant

Society Representatives

- Steve Hall—American Council of Engineering Companies (ACEC)
- Andrea Reynolds, P.E., S.E.—Architectural Engineering Institute of ASCE (AEI) and National Council of Structural Engineers Associations (NCSEA)
- Joseph Cramer, Ph.D., P.E.—American Institute of Chemical Engineers (AIChE)
- Craig Piercy—American Nuclear Society (ANS)
- Stanley Levinson, Ph.D., P.E.—American Nuclear Society (ANS)
- Dana Porter, Ph.D., P.E.—American Society of Agricultural and Biological Engineers (ASABE)
- Dennis Truax, Ph.D., P.E.—American Society of Civil Engineers (ASCE)
- Martin Gordon, P.E., D.F.E., F.NSPE—American Society for Engineering Education (ASEE) and National Academy of Forensic Engineers (NAFE)
- Doug Tougaw, Ph.D., P.E.—American Society for Engineering Education (ASEE)
- Dennis Wessel, P.E.—American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- David Soukup, P.E.—American Society of Mechanical Engineers (ASME)
- David Dexter, P.E.—American Society of Plumbing Engineers (ASPE)
- Frank Taylor, CP, PPS—American Society for Photogrammetry and Remote Sensing (ASPRS)
- William Kelly, Ph.D., P.E.—Council of Engineering and Scientific Specialty Boards (CESB)
- Rob McMillan, P.L.S., E.I.T. —California Land Surveyors Association (CLSA)
- John Steadman, Ph.D., P.E.—Institute of Electrical and Electronics Engineers-USA (IEEE-USA)
- Joseph Michels, Ph.D., P.E.—Institute of Industrial and Systems Engineers (IISE)
- Jay Jeffreys, P.E.—International Society of Automation (ISA)
- James Hollandsworth, P.E., P.S.—Michigan Society of Professional Surveyors (MSPS)
- Mark Sargent, L.L.S.—National Society of Professional Surveyors (NSPS)
- Carl Josephson, P.E., S.E.—Structural Engineering Institute of ASCE (SEI) and Structural Engineering Licensure Coalition (SELC)
- Andrew Schissler, Ph.D., P.E.—Society for Mining, Metallurgy and Exploration (SME)
- Cindy Slone, CAE—Society of Naval Architects and Marine Engineers (SNAME)

The following societies could not attend:

- American Academy of Environmental Engineers and Scientists (AAEES)
- National Society of Professional Engineers (NSPE)
- Society of Fire Protection Engineers (SFPE)
- The Minerals, Metals and Materials Society (TMS)

President Sievers called the meeting to order and welcomed all attendees, presented the agenda to the group, and asked attendees to introduce themselves.

The first order of business was an update of recent NCEES activities.

NCEES Activity Update

President's Report

President Sievers provided an update on NCEES undertakings and highlighted committee and task force activities.

- The Committee on Examination Policy and Procedures is incorporating the recent Public Land Surveying System (PLSS) module information into NCEES exam development and administration policies.
- The Committee on Examinations for Professional Surveyors is working with NCEES staff to identify subject-matter experts for the development of the PLSS module of the Principles and Practice of Surveying (PS) exam.
- The Committee on Finances is working on the details of the five-year operational funding and expenditure plan for the new NCEES Foundation.
- The Committee on Law Enforcement is evaluating criminal and civil expungements to develop best practices for boards and how Enforcement Exchange should handle required expungement situations.
- The Engineering Licensure Task Force and the Special Committee on Bylaws are working together to add a standing committee on licensure, including defining its makeup and responsibilities. The chair of the new licensure committee will be a POLC liaison.
- The Surveying and Mapping Sciences Licensure Task Force is studying issues surrounding the potential licensure of mapping scientists.

President Sievers then turned the program over to COO McDowell to provide updates on examinations, advocacy, and outreach initiatives.

NCEES Exam Updates

Computer-Based Testing (CBT) Update

COO McDowell provided the history of the CBT transition, which began in 2014 and will be completed as of April 2024 when the Principles and Practice of Engineering (PE) Structural exam will be offered by CBT.

Exam Trends

COO McDowell reviewed current exam trends, noting that volumes are up for the Fundamentals of Engineering (FE), Fundamentals of Surveying (FS), and PS exams while PE volumes are down.

Research on FE candidate behavior indicates that examinees are feeling they are not prepared to take the exam and are waiting longer to take the exam. NCEES has introduced several initiatives to help examinees prepare for the exam, including the FE Ambassador Program and distributing free graduation honor cords to current engineering and surveying students who have passed the FE and FS exams before their graduation from an ABET-accredited program.

NCEES is in the process of creating a new PLSS examination and studying the potential need for a Mapping Sciences exam.

NCEES Foundation

President Sievers then provided an update on the establishment of the NCEES Foundation. She noted that the following individuals have been appointed to serve on the Foundation board of directors:

- Dale Jans, P.E., Chair
- Brian Hanson, P.E., Vice Chair
- Iarelis (Ia) Hall, P.S.M., Treasurer
- Sina Nejad, P.E.
- Paul Tyrell, P.E., P.L.S.
- Rita Perea

President Sievers turned the program over to CEO Cox to provide more information on the Foundation as well as updates on advocacy efforts and international activities.

CEO Cox provided a brief overview of the Foundation's purpose, mission, and funding calendar. The initial funding application period will open on October 1, 2024.

Advocacy

Alliance for Responsible Professional Licensing (ARPL)

NCEES is one of the founding members of ARPL, which launched in July 2019. ARPL is a coalition of national associations that represent highly complex, technical professions and their national licensing boards. ARPL was created to ensure that a unified voice for the advanced professions is heard around the appropriate level of licensure for professions and occupations. Lawmakers around the country are taking steps to weaken or even eliminate occupational licensing laws. While these laws may not intentionally target engineering and surveying, these professions are at risk of being swept up in overly broad legislation. ARPL members include NCEES, NSPE, ASCE, and counterpart organizations in the architecture, accountancy, and landscape architecture professions.

ARPL's goal is to educate policymakers and the public on the importance of—and the need to maintain—clear, responsible licensing standards within the professions. Specifically, ARPL is driving a coordinated, national communications and engagement strategy to

- Share its perspective in related media coverage
- Ensure the advanced professions are included in forums discussing licensure laws
- Provide messages, tools, and materials to assist individual state organizations with confronting licensure issues
- Connect state stakeholders and state-level boards and chapters

ARPL is engaging on two levels:

- First, ARPL serves a central communications committee, providing template support materials and communications tips and tools. These resources are available on the ARPL website, responsiblelicensing.org.
- Second, in priority states, ARPL is coordinating with state partners to generate an amplified presence through media outreach, paid advertising, and other communications tools as needed.

International Activities

NCEES is seeing increased activity on the international front and recently added an International Engagement Strategist staff position dedicated to this topic.

U.K. MRA

In response to increasing interest from government bodies, employers, and professional associations, there has been a concerted effort to provide mutual recognition of professional qualifications between the United Kingdom and the United States. This intention was articulated by the U.K. Prime Minister's opening remarks in the Atlantic Declaration at the White House on June 8, 2023: "An agreement to work towards mutual recognition of more professional qualifications in areas like engineering..."

In June 2023, NCEES began working with the Engineering Council (EngC) to develop a mutual recognition agreement (MRA) to facilitate this objective. EngC, established by Royal Charter, governs the engineering profession in the United Kingdom, setting and upholding internationally recognized standards of professional competence and dedication for the public benefit.

The core objective of this agreement is to optimize mobility for Chartered Engineers (CEng) in the United Kingdom and Professional Engineers (P.E.) in the United States. By simplifying administrative procedures, eliminating redundant assessments, and seeking cost-efficient approaches, the MRA will facilitate seamless movement for professionals between the two countries. Such an agreement is beneficial to safeguarding the public health, safety, and welfare of both nations by having individuals licensed in the proper jurisdictions. The MRA also fosters increased opportunities for individuals and businesses, promoting trade, knowledge exchange, and collaboration while addressing skills shortages in critical sectors.

The MRA builds upon the foundation laid by both organizations as founding members of the International Engineering Alliance (IEA) and the International Professional Engineers Agreement (IPEA). The IPEA has an agreed upon set of professional competencies that individuals must meet to be on a member country's international register. The means for assessing the competencies may vary from country to country, but all individuals on an international register possess the professional competencies. For example, the United States uses our PE exams for assessment, while the United Kingdom uses a very structured process involving experience reviews and an oral examination.

In summary, P.E.s on the NCEES international register will qualify for licensure as a CEng in the United Kingdom. CEngs on the EngC international register will qualify for licensure as a P.E. in a U.S. jurisdiction that participates in the MRA. Someone on the U.K. register is substantially equivalent to someone on the U.S. register and vice versa. This reciprocal recognition streamlines the licensure process and bypasses redundant traditional requirements on both sides, though local jurisdictional or discipline-specific criteria may still apply.

President Sievers asked NCEES President-Elect Andy Zoutewelle, P.L.S., to provide remarks to the POLC members.

NCEES President-Elect's Report

President-Elect Zoutewelle provided an overview of his vision for 2024–25. Highlights include the need to continue to focus on threats to public safety and welfare as a result of legislative efforts to weaken or eliminate licensing boards; international P.E. comity, including building consensus within the Council regarding future MRAs; and opportunities for additional pathways to surveying licensure for non-property rights surveyors.

Topics of Interest Discussion

Dennis Wessel, P.E., of ASHRAE highlighted the potential need for licensing of mechanical contractors. NCEES would not be able to offer an examination for this, but the National Institute for Certification in Engineering Technologies (NICET) might be able to help.

Bill Kelly, Ph.D., P.E., of CESB introduced the topic of certification and certificates in credentialing for engineers. The certification landscape has changed significantly in recent years and post-licensure certification is in demand. Dennis Truax, Ph.D., P.E., of ASCE noted that the next generation of engineering graduates are looking for way to set themselves apart through certification. President Sievers noted that this topic was discussed by the NCEES Engineering Licensure Task Force this year.

Jim Hollandsworth, P.E., P.S., of MSPS noted that POLC should be more of a priority, with additional focus and funding from NCEES, and that POLC member organizations need a stronger presence in NCEES. Additional POLC meetings would be beneficial and would help increase the focus on licensure. CEO Cox pointed out that we no longer charge a membership fee to help offset costs for POLC members. He also suggested that it might be possible to include POLC in the plenary session at the annual meeting to provide brief updates on key topics. President Sievers noted that the new Committee on Licensure will appoint a liaison to POLC, and she feels this will help provide additional visibility to the group.

Future Meetings

President Sievers notified the group of the following meetings:

- July 24, 2024—webinar on motions to be presented at the 2024 annual business meeting
- March 14, 2025—POLC meeting at NCEES headquarters in Greenville, South Carolina

POLC Reports

Reports submitted by POLC member organizations are included at the end of these minutes.

Conclusion

With no new business to be brought before the group, President Sievers thanked all attendees for their participation and adjourned the meeting.

American Council of Engineering Companies

Founded in 1906, ACEC is a national federation of 51 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.

IIJA and IRA implementation

Effective implementation of the *Infrastructure Investment and Jobs Act (IIJA)* remains a high priority. ACEC is engaged on an array of issues with federal agencies and state and local client organizations, including procurement and contracting policies, new Build America Buy America requirements, NEPA requirements, and alternative project delivery reforms. One point of emphasis with public sector clients is workforce shortages (see below) and utilization of available contract mechanisms to accommodate the resulting escalation in salaries and other costs for employee recruitment and retention.

ACEC is also tracking the rollout of the *Inflation Reduction Act (IRA)*, particularly tax credits and other incentives for renewable energy investments, manufacturing facilities, and energy efficient buildings.

R&D amortization

Fixing the R&D amortization requirement is one of ACEC's top legislative priorities. Starting in 2022, engineering firms and other innovators must deduct research and development expenses over five years instead of in the year they are incurred, causing significant cash flow impacts on hiring and investment.

ACEC has helped build support for repealing this policy and has advocated for the *Tax Relief for American Families and Workers Act* (H.R. 7024), bipartisan legislation that would delay the R&D amortization requirement until 2026. The House passed H.R. 7024 by a vote of 357-70 and ACEC is urging the Senate to consider the legislation as soon as possible.

Workforce

Data from the Bureau of Labor Statistics shows that the engineering workforce is already at full employment and ACEC's analysis of the IIJA finds that we will need an additional 82,000 engineers and other professionals to deliver the projects funded under the new program. The National Science Foundation reports that a significant portion of the existing engineering workforce is nearing retirement age, and NSF research has also highlighted that current STEM education programs are not sufficiently reaching women and underrepresented minorities to meet the needs of a growing economy.

ACEC supports programs that introduce engineering in K-12 curriculum and attract more college students to engineering programs. The CHIPS and Science Act, which was signed into law in August, includes provisions that seek to improve the alignment of undergraduate and graduate STEM education with workforce needs, as well as grow the overall number of students pursuing STEM degrees. Council members advocated for this law during the 2022 ACEC annual convention.

ACEC also supports policies that enable firms to hire global talent when qualified Americans are not available. The American Society for Engineering Education reports that in 2019 over half of engineering master's and doctoral degrees awarded by U.S. universities were earned by international students. Optional practical training (OPT), H-1B visas and employment-based green cards are all tools that allow engineering firms to tap into this important part of the talent pool. Demand for these visas far outweighs the supply: for fiscal year 2023, there were nearly 759,000 registrations for the 85,000 H-1B visas available in the lottery, and applicants from certain countries may wait for years for an employment-based green card. ACEC continues to ask Congress to raise the cap on H-1B visas, recapture unused employment-based green cards from prior fiscal years.

In addition, ACEC made several recommendations for administrative actions the President could take to facilitate the visa process for engineering firms that are delivering the projects funded through IIJA. USCIS has already implemented one of those recommendations in a final rulemaking related to the H-1B visa lottery: individuals will now only be counted once in the lottery even if they have multiple registrations. This change should reduce the number of frivolous registrations and bring greater fairness and integrity to the process. DOL is also considering implementing another one of ACEC's recommendations: adding engineering and other STEM fields to the Schedule A process for green cards. If this proposal moves forward, it would allow engineering firms and other employers to skip the lengthy and expensive labor certification process when sponsoring an employee for a green card.

Diversity, equity, inclusion and belonging

Another key element of expanding the engineering workforce is committing to diversity, equity, inclusion, and belonging (DEI&B) in the workplace. Driven by its strategic plan, ACEC stood up a DEI&B Committee, which is leading ACEC's work to advocate for legislative and regulatory policies that advance DEI&B, 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.

ACEC is participating in the Women of Color in Engineering Collaborative, an organization made up of engineering associations and societies that are working together to identify barriers to women of color in the engineering workforce and strategize about ways to mitigate those barriers. ACEC was accepted into a cohort of ACCESS+, which brings together STEM organizations to learn about evidence-based DEI programs and practices and helps organizations create action plans to further their own DEI&B work.

Education

ACEC continues to provide business and education resources for engineering consulting firms, offering a range of in-person and online programming for firm employee at all levels. Popular programs include the Senior Executives Institute (SEI) for leaders in or aspiring to be in the C-Suite; Pathways to Leadership for mid-career staff; and the Business of Design Consulting for employees transitioning from technical to managerial positions. The calendar of events highlights upcoming course offerings and visitors can also search a robust catalog of archived courses.

ACEC Coalitions provide timely and practical resources for firms in a specific discipline including MEPs, Structural Engineers, Land Development, Geoprofessionals, and Surveyors. Coalition publications, resources and online education is designed specifically for each discipline and can be accessed here.

Architectural Engineering Institute

Report to the Participating Organizations Liaison Council of the National Council of Examiners for Engineering and Surveying, March 23, 2024 in Alexandria, VA

Vision:

To be the worldwide resource for the advancement of the design and construction of integrated buildings.

Mission:

To promote an integrated, multi-disciplinary approach to planning, design, construction and operation of buildings by encouraging innovation, collaboration, and excellence in practice, education and research of architectural engineering.

Architectural engineering is the application of engineering principles and technology to building design and construction. Architectural engineers are unique in their skills and role as they work together with architects and civil engineers as part of the building design team. AEI provides its members timely technical information, professional advocacy, continuing education, and opportunities to excel in their careers.

AEI Committees

AEI's committees provide a forum to study and present new developments and technologies and to stimulate the multi-disciplinary cooperation needed to advance the field and state of the art in creating better buildings. AEI currently has approximately 6,000 members and support many different committees:

- Board of Governors
- Academic Council
- Emerging Leaders Council
- International Student Design Competition
- National Student Officers
- President Emeritus Council
- AEI Build Technical Committees
- Professional Project Awards

AEI Build

In response to increased hazards and their effects on the built environment, the Architectural Engineering Institute (AEI) has established a technical forum to amass a growing knowledge base for the Architectural Engineering community to discuss, debate, and share new ideas that affect a more pronounced change in the design, construction, and maintenance of buildings.

AEI Build draws on the best ideas in design, construction, and maintenance of buildings and offers the Architectural Engineering community a new resource of innovative research, new advancements, and best practices in key focus areas, which are most critical to the advancement of design, construction and maintenance of integrated buildings in the 21st century. The AEI Build initiative is one of several

strategic steps embraced by the AEI Board of Governors to help realize the Institute's vision to be the worldwide resource for the advancement of the design and construction of integrated buildings.

AEI Build outlines eight practice focus-areas of the architectural engineering profession. Each AEI Build category is multi-disciplinary in nature and requires interdisciplinary collaboration.

- Deliver
- Enclose
- Learn
- Modular
- Perform
- Resilient
- Secure
- Sustain

AEI Events

AEI offers a biennial National Conference; the most recent conference was the 10th Biennial Professional Conference which was held in Denver, CO that was focused on ***Climate Conscientiousness and Resilience: The Need for Integrated Building Solutions***. In alternate years AEI partners with a University program to host a Biennial Forum, originally this was focused mainly on students, but has grown to support the industry as well. AEI has partnered with The Pennsylvania State University and Volumetric Building Companies for the 2024 Forum, ***Imagining Modular: Advancing Integrated Design*** taking place April 8-10, 2-24 in San Jose, CA.

Over the past several years AEI has begun an annual virtual ***Leadership Summit*** to engage the various leaders throughout the organization to share initiatives, lessons learned, and ideas in discussions to provide value to members, grow the Institute, engage emerging leaders and volunteers, and to consider the future of AEI.

International Student Design Competition

The Student Design Competition is a hallmark program for AEI. This annual competition highlights the collaboration of multi-disciplinary architectural engineering student teams, showcases the knowledge and application of design and construction principles to a real-world project scenario, and prepares students for the realities of their chosen industry. Many of the Universities use this competition for their capstone projects and engage with their local architectural, engineering, and construction industry for partnership, mentorship and guidance. *Pictured: 2024 competition project Omaha VA Ambulatory Care Center, Omaha, Nebraska.* Also, these projects are often further honored with NCEES student awards.

In effort to engage more Universities and students earlier in their education, a new student competition is being held live at the 2024 Forum. Students from different Universities will be partnered together for a 1-day competition that is modeled after a competition that the University of Cincinnati puts on called "Bridge the Gap".

Webinars and Publications

AEI held several webinars in 2023 including the feature 5-part series on the Kendeda Building for Innovative Sustainable Design. Many of AEI's publications are developed through the AEI Building Technical committees. Recent publications are related to Façade Access Equipment, Building Security Rating Systems, and Curtainwall Systems. The most prominent AEI is the Journal of Architectural Engineering which is a quarterly publication that was started in 1995.

Licensure and AEI Architectural Engineering Exam Committee

The architectural engineering professional engineering exam was first offered in 2003 and is now recognized in Puerto Rico and within the United States and Puerto Rico excluding the following states: Alaska, California, Hawaii, Nevada, and Oregon. On December 1st, 2022, the Vermont's Board of Professional Engineering voted unanimously to recognize Architectural Engineering as a distinct specialty discipline and recognize the associated NCEES Examination as a qualifying credential for that specialty. AEI and volunteer Anthony Flynn were instrumental in moving the issue forward. Early this year AEI met with the Alaska Engineering board to discuss architectural engineering and the AE PE exam as they consider recognizing the AE exam for PE licensure.

The architectural engineering exam is ideal for engineering candidates who want a licensure exam that addresses areas directly related to buildings and building systems. The AE PE Exam covers:

- Building systems integration
- Electrical systems
- Mechanical systems
- Structural systems
- Project management and construction administration

Architectural Engineering PE Exam Review

AEI has developed a 4-part AE PE Exam Review Series to assist candidates in preparation for the exam and to gain confidence to pass the exam. Four content areas are covered in this review series: electrical systems, mechanical systems, structural systems, and project management and construction administration. During live sessions, the instructors review tools and strategies to prepare and pass the exam and solve problems in a step-by-step manner to prepare you for the AM and PM exam. These courses also serve as refreshers for AEs seeking to refresh their knowledge base in a secondary or tertiary AE technical sector currently outside of their primary practice.

AIChE 2024 POLC Report

PE Chemical Exam Development Committee in 2023

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 2023 in-person meeting and a fall 2023 virtual meeting. The committee leadership remained in place for 2023, with the next leadership transition due in August of 2024. 2023 marks the sixth year of computer-based testing for the exam.

A continuing major activity was to develop 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. The next PAKS is anticipated to begin in about a year, and it is likely that the chemical engineering community will be solicited for feedback in 2025. The feedback requires replies from at least 200 practicing licensed AIChE members. To encourage responses, AIChE will provide a 1-hour PDH to those completing the survey. The ANS offered PDH's in a recent survey and obtained well over 200 respondents.

During the previous two years, the committee undertook an effort to strengthen the operational bank of test items available for compiling examinations with the linear-on-the-fly (LOFT) test format. Some of the 41 areas in the exam specification had relatively low numbers of items available for use on tests, most of which were elevated in importance based on the feedback from the previous PAKS. An analysis of the item bank identified the specification areas needing additional new test items and developed targets for the number of new items needed in these areas. The committee members, of which about one-third are Fellows of AIChE, responded admirably and there are now sufficient numbers of new items ready for the pretest protocol to ensure that the operational item bank will be strengthened over the next several years.

The committee plans to meet twice in 2024 to develop exam items and to edit the reference handbook for annual revisions. The committee is comprised of 34 volunteer members from a range of industries and engineering functional roles. Meeting size is limited to 15 attendees in 2024. Most committee members will participate in one exam development meeting in 2024.

FE Exam Committee

The Fundamentals of Engineering (FE) Exam team also continued its work and the Chemical Engineering Module continued to perform well. One in-person meeting and one virtual meeting were held in 2023 with forty-eight (48) new items written, reviewed and approved for the 2024 pre-test pool. Four (4) new items were also written, reviewed, and approved for the 2025 pre-test pool. Work in 2023 was focused on the new specification areas and cleanup of the existing question bank by flagging pairs of questions which should not appear on the same exam (bad pairs).

The FE Exam team will meet twice in 2024 for in-person meetings (1st and 3rd quarters). The committee is composed of 14 volunteer members from a variety of backgrounds in industry and academia. Most committee volunteers participate in at least one exam development meeting each year.

The number of FE Chemical test takers was 1,616 in 2023 with 1,434 first time test takers and 182 repeat test takers. The overall pass rate was 67% with a pass rate of 71% for first time test takers and 37% for repeat test takers.

Other Licensing Support Developments

AIChE continues to oppose any implementation of a master's-or-equivalent (MOE) requirement as a prerequisite for initial PE licensure and still 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. AIChE participates in the consortium of organizations known as *Licensing that Works* which monitors developments relating to licensing requirements.

The AIChE Licensing and Professional Development Committee follows developments in licensure and works to promote awareness of the importance and benefits of licensing. A presentation to undergraduates has become a fixture of the annual student conference. In 2023 the presentation was presented at the Annual Meeting in Orlando and will likely again be presented at the 2024 Annual Meeting in San Diego. Presentations are also available virtually to undergraduate AIChE student chapters and other groups upon request.

Other AIChE Educational, Professional and Outreach Initiatives

AIChE continues to sponsor an extensive technical meeting and education program domestically and internationally.

Amongst the most important newer AIChE initiatives are the Hydrogen Safety Center (CHS), Manufacturing Institute (RAPID) and Learning and Innovation Institute (ILI) Highlights include the following.

CHS

Established in 2019, the Center for Hydrogen Safety (CHS) by AIChE has emerged as the global leader in hydrogen safety. The organization guides industry stakeholders in the secure handling and utilization of hydrogen, offering international partner organizations valuable resources that cover both traditional and expanding applications of hydrogen as a fuel source.

In 2023, CHS witnessed substantial growth, with its membership expanding to 113 organizations and establishing 15 strategic partnerships.

A key focus for CHS has been its commitment to education. The organization revised all nine fundamental hydrogen safety courses and introduced a new course dedicated to electrolyzer safety. Additionally, CHS secured grant funding to develop a hydrogen lab safety course, offering it free of charge for the next three years. This initiative ensures that vital hydrogen safety information is readily accessible to individuals working in universities and other laboratory environments. Furthermore, CHS sustained its webinar series, hosting three additional technical webinars with over 2,000 registrants.

CHS marked a significant milestone by hosting its inaugural conference in Europe, attracting 131 attendees from 25 countries and securing sponsorship from four companies. The organization's eLearning courses achieved an impressive attendance milestone, surpassing 10,000 participants in 2023 alone.

RAPID

- DOE announced RAPID's renewal, as a Manufacturing USA institute, for the next 5 years with $40MM in Federal funding to continue focusing on industrial efficiency and decarbonization of the chemicals and fuels industries.
- Completed 4-one week iterations of a new K-12 summer camp in partnership with Miami University called “Number Up Innovation” with 50+ students.
- RAPID was awarded a $7MM award to scale up electromagentic reactors for the production of light olefins from waste plastic in a collaborative industry/academia/national lab project funded by the DOE.
- Hosted the 3rd Annual ChemE Cube Competition™ at the 2023 Annual Student Conference. Ten teams designed, built, and demonstrated a mini-plant in a 1-ft cube that incorporates direct air capture technologies. Congratulations to University of South Carolina for winning first place.

Institute for Learning & Innovation (ILI)

- Piloted customized Career Discovery workshops for companies & universities
- Expanded Sustainable Energy Corps program to 10 universities, including 3 outside the U.S. (enabled through UEF funding)
- Won Phase 1 of the DOE-sponsored Community Energy Innovation Prize in partnership with the Sustainable Energy Corps team from Lamar University
- Launched Energy 101 courses on non-fossil energy sources, existing emissions mitigation technologies & greenhouse gas calculations
- Created 7 new eLearning courses on hydrogen (in 3 languages), clean energy & sustainability
- Published new EDI module on confronting micro-aggressions in STEM & engineering
- Updated popular Incident Investigation & Root Cause Analysis instructor-led course
- Launched instructor-led course titled Process Safety Leadership for Frontline Supervisors

Report of the American Nuclear Society to the
Participating Organizations Liaison Council of the
National Council of Examiners for Engineering and Surveying

March 23, 2024 (Alexandria, VA)

The American Nuclear Society (ANS) Professional Engineering Examination Committee (PEEC) is 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. Ms. Alexandra Siwy is the current chair; the vice-chair is Dr. Tracy Stover, who will assume the chair appointment in mid-June 2026.

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, *Nuclear 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* blog, online collaboration tools, and the launch of the ANS Webinar series have offered new approaches for the PEEC to promote licensure and increase outreach. Recent ANS publications include an opinion article in the May 2023 issue of *Nuclear News* promoting the indispensable value of a P.E. license for entrepreneurs as well as year-round PE exam promotional advertisements on *ANS Newswire.*

The ANS PEEC also regularly attends the ANS Student Conferences, including the most recent conference at the University of Tennessee (in 2023), to spread awareness of the FE and PE exams, and licensure in general. At the conferences, PEEC members interact with students at informational booths, present at lunch and learns, and distribute promotional flyers.

In addition, some ANS PEEC members take the initiative to distribute information about the PE exam and licensure in their respective places of employment. Recent examples include three annual panel discussions featuring P.E.s at the U.S. Nuclear Regulatory Commission (NRC) who informed NRC staff and summer interns about what it means to be licensed, reasons to pursue licensure, the licensure process, exam preparation, and available resources. In addition, in June 2022, the Pacific Northwest National Laboratories (PNNL) monthly employee newsletter featured an article titled, “Earn Professional Engineer (P.E.) Licensure.”

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 PE nuclear engineering exam. One major recent effort was the development of the online Nuclear PE Exam Preparation Module Program, which captures all five subject areas tested on the PE nuclear engineering exam, i.e.: 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. The PEEC maximized accessibility of the program for exam candidates by making the modules available online year-round. The module program is available for purchase on the ANS website (https://www.ans.org/library/item-pemodules/).

In addition to the ANS online study modules, the NCEES offers a PE Nuclear Practice Exam for purchase. This study aid was developed by the PEEC and first published by NCEES in 2019. It was updated in 2023 to reflect the new exam specification that became effective in 2021. 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. The NCEES PE Nuclear Practice Exam is available for purchase on the NCEES website (https://account.ncees.org/exam-prep/).

American Nuclear Society Support

The ANS Board of Directors continues to maintain a supportive position towards 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 Young Professionals Conference (YPC) meeting in Washington, DC.

NCEES Support

The ANS PEEC provides the volunteers to attend two NCEES-sponsored meetings per year to support the development of new questions for the PE nuclear engineering exams; the compilation of the actual exam (and a contingent exam) each year; "post-mortem" review of exam questions once the problem statistics are available; training on the creation of suitable multiple choice questions, as well as Alternative Item Types (AIT) questions; and review of new questions (to-be-promoted) to ensure clarity, ensure solvability with the information in the PE Nuclear Reference Handbook, as well as remove trivial questions.

Due to a number of factors (e.g., aftermath of Fukushima nuclear accident in March 2011, impact of COVID-19, as well as political and regulatory issues in the nuclear industry), the number of first-time PE nuclear engineering exam takers has decreased in the last few years, resulting in fewer than 50 first-time exam takers over a two-year period. As such, the PE nuclear engineering exam was placed on probation in 2023 in accordance with NCEES policy. In addition, NCEES asked the ANS PEEC to develop a Remedial Action Plan to increase the number of first-time exam takers. In the 2023 Remedial Action Plan, the ANS PEEC identified four actions for itself to take: (1) update the NCEES PE Nuclear Practice Exam to reflect the 2021 nuclear exam blueprint; (2) update the ANS Nuclear PE Exam Preparation Module Program to reflect the 2021 nuclear exam blueprint; (3) update the ANS Study Guide for the Professional Engineering Examination in Nuclear Engineering to better align with the 2021

nuclear exam blueprint; and (4) continue active promotion of professional licensure. The ANS PEEC also identified two recommendations for NCEES to consider: (1) move the PE nuclear engineering exam to a Monday rather than a midweek day and (2) move the PE nuclear engineering exam to April instead of October.

Since 2023, the ANS PEEC has completed action (1), made 25 percent progress towards action (2), made 50 percent progress towards action (3), and has participated in several activities related to the ongoing action (4). Although not documented in the Remedial Action Plan, the ANS PEEC also plans to specifically increase outreach to colleges and universities to increase awareness of licensure in a key population of potential examinees. The ANS PEEC is awaiting the decision of NCEES regarding its two recommendations.

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 improving nuclear safety standards across the industry.

Respectfully submitted,

Alexandra Siwy, P.E.
ANS PEEC Chair

Stanley H. Levinson, Ph.D., P.E.
co-ANS POLC Representative

Zhegang Ma, Ph.D., P.E.
co-ANS POLC Representative

ASABE POLC Report on 2023 Activities
March 2024

ASABE Membership Profile

ASABE currently has 7,328 total members (as of October 31, 2023), with 5,728 full members and 1,498 student members. Approximately 33 percent of nonstudent members hold PE registration in one or more states.

Venues for Licensure Discussion

The ASABE Engineering Licensure Committee (ASABE EOPD-414) met virtually October 2, 2023.

ASABE EOPD-414 Winter Item Writing Workshop, February 5-6, 2024 at NCEES Headquarters in Greenville, SC

ASABE EOPD-414 Writing Workshop (virtual), February 9-10, 2023

NCEES Agricultural and Biological Engineering PE Exam Cut Score Meeting was held Mar 3-4, 2023

ASABE EOPD-414 Fall Exam Item Bank and Writing workshop August 28-29, 2023

The 2023 ASABE Annual International Meeting was held July 9-12, 2023 in Omaha, Nebraska. Licensure support activities at this meeting included:

- Professional Development Hours available through technical sessions, workshops, and tours.
- Engineering Ethics subject matter was addressed in the following technical sessions:
    - Emerging Technologies and Technical Ethics for Agricultural Data Management and Governance (2.5 hours)
    - Ethics in Engineering student Essay and Video Presentation session (2 hours)
- Special session promoting licensure: Guide to Professional Licensure Lunch and Learn session

ASABE Section Meetings (State and Regional Sections of ASABE) also offered Professional Development Hours for technical content and ethics content. These are great opportunities for members who do not attend the Annual International Meetings. Engineering licensure and ASABE licensee support resources were promoted at the following meetings:

- Kansas Section ASABE Meeting, Manhattan, KS (presented virtually), March 31, 2023
- Florida Section ASABE Meeting (presented virtually), June 5, 2023
- North Atlantic Biological Engineering Consortium (NABEC, presented virtually), Guelph, Ontario, July 31, 2023
- Texas Section ASABE Meeting, Lubbock, Texas, October 19-20, 2023
- North Carolina Section ASABE Meeting, Raleigh, NC, November 3, 2023
- International Student Branch officers meeting (presented virtually), St. Joseph, Michigan, January 19, 2024.
- Oklahoma Section ASABE Meeting, Stillwater, Oklahoma (presented virtually), March 8, 2024

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. Historically, the FE OD exam has had pass rates ranging from 77 percent to 85 percent for first-time takers. Of the 178 examinees in the July-December 2023 time period, 28 individuals self-reported to be from Biological (non-Biomedical) programs. Pass rates for examinees was 62% for the Other Disciplines exam; pass rate was 75% for Biological Engineering examinees.

The Principles and Practice Exam for Agricultural and Biological Engineering was administered in October 2023. Pass rate for 19 first-time examinees was 89%; the one repeat examinee did not pass.

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. In 2023 (and early 2024), additional exam items were developed and reviewed, and the examinee reference materials are being reviewed. A Cut Score Panel was conducted, made necessary by the new exam specification.

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, Professional Engineers Institute (PEI), Professional Ethics Committee; and continuing education opportunities (some of which are listed above).

- ASABE EOPD-414 Engineering Licensure Committee promotes engineering licensure among members by preparing the PE exam and providing preparation materials for exam takers, and it protects the licensure process for future Professional Engineers. ASABE EOPD-414 Chair is Anthony Doss, PE; Vice Chair is Thomas Dodd, PhD, PE.; Secretary is Gayle Baker, P.E.. NCEES POLC Representative is ASABE President Dana Porter, PhD, PE.
- Webinars and other examinee preparation resources are made available by the Professional Engineers institute and Young Professionals Community.These resources are promoted through the ASABE website, as well as in ASABE headquarters and president's updates at section meetings, student rallies and other activities (examples are listed above).
- Sessions encouraging engineering licensure (encouraging students to take the FE exam and providing guidance on steps to engineering licensure) are held at ASABE Annual International Meetings (included in the list above). 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 examinees to be used in any way they see fit. Repeat candidates can receive the $150 incentive payment. ASABE also has a mentoring program to match individuals who plan to take the PE exam with engineers who have relatively recently passed the exam.

The Professional Engineering Institute of ASABE (PEI, with 110 members), 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. 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.

Continuing Education

In addition to 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, ASABE offers a variety of continuing education opportunities. Virtual offerings include periodic "Member Hour" webinars and podcasts, as well as virtual conferences. In-person training includes Continuing Professional Development workshops and technical sessions at ASABE Annual International Meetings, specialty conferences and section meetings (some of which are listed above). Student poster and oral presentation competitions in technical sessions and student ethics essay and video competitions encourage engagement of students with professionals/mentors.

Committee Assignments
The chair of the ASABE Professional Engineering Institute is Brady Lewis, PE; Anthony Doss, PE, chairs the ASABE EOPD-414 Professional Licensure committee; and Peter Livingston, PhD, chairs the ASABE EOPD-204 ABET accreditation committee. EOPD-414 past chair Ajay Kumar, PhD, PE, is the ASABE representative to NCEES EPE, and ASABE President-elect Dana Porter, PhD, PE, represents ASABE on NCEES-POLC. ASABE member (and past member of our Board of Trustees) David Jones, PhD, serves on the ABET Board of Delegates; ASABE member Thomas Brumm, PhD, serves on the ABET Engineering Technology Area Delegation.

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 driven by approximately 2,000 unique volunteer positions. The 2023 ASABE Standards CD includes 286 standards, with 36 active projects. In comparison, the 2004 Standards collection comprised 217 standards. Additionally, ASABE has nationally adopted 61 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. ASABE is accredited by the Standards Council of Canada, and is able to develop National Standards of Canada in much the same fashion as are the currently develop American National Standards under ASABE accreditation by the American National Standards Institute.

Publications
Our peer reviewed journal *Transactions of the ASABE* has been renamed to *Journal of the ASABE* beginning with 2022. Manuscript reviewer training events were held at the 2022 and 2023 Annual International Meetings. The most recent impact factor for *Transactions of the ASABE* increased for the eighth year in a row and now stands at 1.5, compared to 1.238 last year. The median number of days to first decision is 50 days, an improvement over 67 days reported last year.

A new open access *Journal of Natural Resources and Agricultural Ecosystems* is available effective January 2023. It will be published four times per year, with articles published online as they are completed.

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. Members of ASABE served as judges in local/regional Future City events and in the Future City Finals competition.

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. A BIPOC community (Black, Indigenous and People of Color) focuses on providing networking,

mentoring, and professional development opportunities. The IDEA (Inclusion, Diversity, Equity, and Access) committee has created a major award focused on Inclusion, Diversity, Equity, and Access, with the first recipient recognized at the 2022 Annual International Meeting.

Engaging Membership

The ASABE Board of Trustees and Membership Department have created new opportunities to engage students and have increased undergraduate memberships by more than 267.4% since the pandemic. ASABE sponsors ten competitions for undergraduate students and seven competitions for graduate students; three scholarship programs for undergraduates and one fellowship for graduate students; and five major awards for students.

ASCE 2024 Report to the
NCEES PARTICIPATING ORGANIZATIONS LIAISON COUNCIL (POLC)

Presented by
Dennis D. Truax, Ph.D., P.E., BCEE, BC.WRE, Pres.22.ASCE , FASC, F.NSPE, F.ASCE

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. Of the many committees supporting the mission of this Society, ASCE has a standing committee that reviews and proposes policy related specifically to the profession. Other committees deal routinely with the aspects of licensure, i.e., accredited education, the body of knowledge required for practice, certification, and experience.

An abridged summary of select ASCE's programs dedicated to furthering our mission of supporting licensure are summarized below:

I. 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 and the protection of the public's health, safety, and welfare. Some of these include:

a. Policy Statements – ASCE has nine (9) policy statements that address various aspects of licensure and help it to promote licensure. In 2023, ASCE updated three (3) policies: PS 130 Licensure of Professional Engineers, PS 464 Professional Licensure Mobility, and PS 547 Engineering Examination for Professional Licensure.

In 2024, ASCE is in the process of reviewing and updating the following policies: PS 333 Engineering Surveying Definition, PS 385 Licensure Requirements for Government Engineers, PS 425 Continuing Professional Development for Licensure, and PS 450 State Licensure Boards for Professional Engineers.

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

b. 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.

c. Published Resources – including:

- "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

d. A Question of Ethics – The Society maintains a column offering authoritative examination of ethical conduct cases related to the profession and practice. Published 11 times per year, these articles are available in *Civil Engineering* magazine and on our website. https://www.asce.org/career-growth/ethics/question-of-ethics

e. FE and PE Examination Preparation – ASCE offers guidance on taking and passing the Fundamental of Engineering (FE) Exam. https://www.asce.org/education-and-events/explore-education/fe-exam. We are also exploring the potential to offer a national review course. The Society also supports in person and online review courses to help those taking the Principle and Practice of Engineering (PE) Examination. https://www.asce.org/education-and-events/explore-education/pe-exam-reviews

f. Accreditation – Through its membership in ABET, Inc., ASCE supports accreditation of engineering degree programs, a vital cornerstone of licensure requirements in most jurisdictions. ASCE is the lead society supporting the Engineering Accreditation Commission for all civil engineering, architectural engineering, construction

engineering and co-lead society for ecological engineering. ASCE also supports the Engineering Technology Accreditation Commission as the lead organization for civil engineering technology, architectural engineering technology, and construction engineering technology programs accredited through ABET. Not only does ASCE help ABET develop and establish program criteria in those areas, but it actively recruits, trains, and coordinates volunteer program evaluators assignments for program accreditation assessment annually.

g. 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/

II. Vision for the future of the civil engineering profession

a. Civil Engineering Body of Knowledge

The 3rd edition of ASCE's *Civil Engineering Body of Knowledge for the 21st Century* (CE-BoK) was published in 2019. The CE-BoK 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, mentored experience, and self-development. https://www.asce.org/career-growth/cebok

b. 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 new fields; such, as sustainability, computer applications, advanced materials, nanotechnology.

While the knowledge, skills and attitudes needed to practice civil engineering have increased steadily, the educational standards for our profession have remained virtually unchanged for decades. The current engineering education will not be sufficient to prepare civil engineers to address the civil engineering challenges of the future. https://www.asce.org/initiatives/engineer-tomorrow

c. Civil Engineering Technologist Body of Knowledge

ASCE developed the *Civil Engineering Technologist Body of* Knowledge (CET-BoK) to describe functional areas in which a civil engineering technologist might work 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.

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

a. Civil Engineering Certification

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), the Academy of Coastal, Ocean, Port & Navigation Engineers (ACOPNE) and the Utility Engineering and Surveying Certification Board (UESCB) were created and are led by CEC.

Board certified engineer credentials are awarded by these administrative units 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, advanced education, ten years' experience beyond the undergraduate engineering degree, and a commitment to professional development and ethics.

Information on the specialty certifications and their requirements can be found at: https://www.asce.org/certifications

b. Technical Certificate Programs

ASCE continues to develop and offer course series in specific technical areas of civil engineering, in the form of certificate programs. In 2023, a completely revised and updated Construction Engineering Certificate Programs series was launched to support engineers' skills development in managing construction engineering projects, will-timed with the increase in projects funded through the IIJA. Currently available programs can be found here: https://www.asce.org/education-and-events/explore-education/certificate-programs.

c. Professional Skills Certificate Programs

In addition, in 2024, ASCE will launch its first professional skills certificate program for early career engineers focused on communication. This is the first in a series that will also include teamwork and leadership.

IV. Other ASCE Initiatives

a. Communications and Legislative Activities

ASCE government relations staff monitors legislative and regulatory trends at the federal, state, and local level 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 2023, ASCE collaborated with the National Governors Association to convene a group of practitioners to identify actionable approaches that private industry and public sector infrastructure groups can utilize to address workforce shortages considering the passage of the Infrastructure Investment and Jobs Act (IIJA). The resulting conversation resulted in best practices for addressing the engineering workforce challenges in both the short term and long term. The white paper outlining those findings can be found here.

In spring 2024, ASCE will release an update to the Society's analysis of the 10-year and 20-year infrastructure investment gap, the first analysis since the passage of the IIJA. That study will assess the nation's overall infrastructure investment needs and estimated current spending, to determine what additional investment is necessary to bring systems into a state of good repair. The economic study is a precursor to the 2025 Report Card for America's Infrastructure.

b. ASCE's Cities of the Future

ASCE and MacGillivray Freeman Films – the team that brought Dream Big: Engineering Our World to giant screens around the world – have united to produce a new film inspired by ASCE's Future World Vision initiative: Cities of the Future. This movie will explore the key trends featured in ASCE's Future World Vision initiative – climate change, renewable energy, high-tech construction materials and methods, renewable energy, smart cities, and public policy – and how the intersection of those trends and the decisions we make today will reshape cities far into the future.

Featuring five young ASCE members working to solve the world's most pressing challenges with inspiring solutions, the film also follows a team of middle school students as they compete in the Future City Competition and uses jaw-dropping CGI

and the immersive size and sound of the IMAX experience to allow audiences to "step into the future."

Cities of the Future will explore the key trends featured in ASCE's Future World Vision initiative – climate change, renewable energy, high-tech construction materials and methods, renewable energy, smart cities, and public policy – and how the intersection of those trends and the decisions we make today will reshape cities far into the future.

The film will premiere on February 16, 2024 in select museum and science center theatres and later across the United States and numerous international markets.

Cities of the Future is being used by regional ASCE groups as an opportunity to organize screenings and related outreach events to showcase the vital role and exciting career opportunities offered for systems engineering of civil infrastructure.

New for Cities of the Future will be a public forum program. These forums will convene groups of community leaders, high school, college students, and engineering and planning professionals to spark discussion and shape a shared vision for the community's vision of the future.

c. 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. https://www.futureworldvision.org Identified trends for the project include alternative energy, autonomous vehicles, climate change, smart cities, high-tech advanced materials, and policy and funding. The website provides an interactive experience and highlights six (6) key trends that will impact us and the systems we build: alternative energy, autonomous vehicles, climate change, smart cities, high-tech construction, and policies and funding. It also provides an interactive, desktop application so a person can visit and interact in the city of the future.

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.

d. Civil Engineering Technology

Noted previously, ASCE is active in helping establish criteria for CET education standards. More recently, this effort has expanded into a Society-wide evaluation of how to embrace more fully those with degrees in civil engineering technology as part of the profession of civil engineering. These efforts are expanding beyond just an ABET/ETAC degree. They will serve to pull all of those impacting civil engineering projects into the "family" making them professionally accountable per ASCE's recently revised Code of Ethics. https://www.asce.org/career-growth/ethics/code-of-ethics

e. Surveying

ASCE's institute, the Utilities Engineering and Surveying Institute (UESI), is increasingly engaged in establishing standards for surveying practice and members are working with NCEES on the development of the surveying exams. They are developing programs to modernize the profession of surveying while engaging other stakeholders in the effort. They are also working within ASCE to establish engineering surveying standards in civil engineering programs. Lastly, they are working with CEC to develop a new written-exam-based certification program, Board Certified Pipeline Engineer Water (BC.PLW), launching in summer 2024.

V. ASCE Participation with NCEES

ASCE maintains formal relationships with NCEES through several ASCE Member liaisons and ASCE Staff Contacts, listed in the Appendix. In addition to those listed, a significant number of ASCE members serve on standing committees, examination preparation committees, and task forces to support the NCEES mission to advance licensure for engineers and surveyors to safeguard the health, safety, and welfare of the public.

VI. ASCE Annual Convention

ASCE's 2024 Convention will be held October 6 – 9, 2024 in Tampa, Florida.
https://convention.asce.org/

APPENDIX

ASCE Contacts to NCEES

Marsia Geldert-Murphey, P.E., F.ASCE
2023-2024 President

Feniosky Pena-Mora, Sc.D., P.E., NAS, CCM, F.CIOB, NAC, Dist.M.ASCE
2023-2024 President-Elect

Thomas W. Smith III, ENV SP, CAE, F.ASCE
Executive Director

Dennis D. Truax, Ph.D., P.E., BCEE, D.WRE, Pres.22.ASCE , F.NSPE, F.ASCE
2022-2023 Past-President
ASCE Liaison to NCEES Participating Organizations Liaison Council (POLC)

Caroline M. Sevier, Aff.M.ASCE
ASCE Managing Director, Government Relations and Infrastructure Initiatives
- *Staff Contact for ASCE's Committee on Licensure*

Leslie Nolen, Aff.M.ASCE
ASCE Director, Educational Activities

For more information, contact us at professional@asce.org.

American Society for Engineering Education Updates

Submitted by: Drs. Doug Tougaw and Jacqueline El-Sayed

Board of Directors: Doug Tougaw, Ph.D., ASEE President

The American Society for Engineering Education (ASEE) continues to make progress toward long-term financial sustainability. There is still a great deal of work to be done, but we have made significant progress over the past eighteen months. We are now striving to return to normal operations and to develop a new five-year strategic plan that will help us to strengthen both our finances and the value proposition we offer to our members.

The Board of Directors is deeply grateful for the patience and support of our members and partners through this crisis. Our goal is to emerge from this experience as a much stronger and more robust organization, poised to lead engineering education well into the future.

We are deeply indebted to our talented and hard-working headquarters staff for their incredible dedication over the past year.

President Tougaw has attended many events on behalf of ASEE this year, both in person and remotely:

- Spoke via recorded video to the Japanese Society for Engineering Education (JSEE) for their annual meeting in August 2023.
- Spoke remotely to the Korean Society for Engineering Education (KSEE) annual meeting on September 21, 2023.
- Attended the Engineering Technology Leaders Institute (ETLI) October 9-11, 2023.
- Gave the keynote presentation to the ASEE North Midwest section conference on October 5, 2023.
- Attended and served as Master of Ceremonies at the ASEE 130th Anniversary Gala on October 10, 2023.
- Spoke at the Assessment Institute in Indianapolis, Indiana on October 30, 2023.
- Spoke remotely to the 2023 International Conference on Engineering Education in the Philippines on November 10, 2023.
- Spoke at the ASEE Public Policy Colloquium February 5-8, 2024.
- Attended the Collaborative Network for Engineering and Computing Diversity (CoNECD) conference February 25-28, 2024.
- Will attend the NCEES Participating Organizations Liaison Council (POLC) meeting on March 22-23, 2024.
- Will attend the ASEE Engineering Dean's Institute April 14-18, 2024.
- Will attend the ASEE Annual Conference June 22-27, 2024.

Member Services Sector: Patricia Greenawalt, Chief Operations Officer

We are happy to report that a prolific number of abstracts have been accepted for the annual conference in Portland (June 23 to 26). ASEE's annual conference exhibit hall sales have also been very productive. Additionally, attendance is on track for ASEE's council meetings this spring including the Public Policy Colloquium (PPC) in Washington, D.C. (Feb 5-7), Conference for Industry and Education

Collaboration (CIEC) Garden Grove, CA, (Feb 6-9), Collaborative Network for Engineering and Computing Diversity (CoNECD) in Crystal City, VA (Feb 25-28), Research Leadership Institute (RLI) March 4 to 6 in Arlington, VA, the Engineering Deans Institute (EDI) April 14 to 17 in San Diego and the Engineering Technology Leadership Institute (ETLI) in Rochester, NY (Oct 14-16).

Administrative and Governance Sector: Monique Maddox, Chief Administrative Officer

ASEE's governance has been restructured to better support the ASEE shared governance model. These changes have dramatically increased the effectiveness of the collaboration between the volunteer and headquarters leadership.

Professional Services Sector: Jacqueline El-Sayed, Ph.D. Chief Executive Officer

As the new "externally focused" CEO, Dr. El-Sayed has attended and continues to attend all of ASEE's conferences and many meetings, including Board of Directors meetings. She also sits on the NAE Roundtable on the Systemic Change in STEM Undergraduate Education in Washington, D.C. She has led the development of ASEE's new Senior Leadership Team.

Under Dr. El-Sayed's leadership, ASEE has developed significant new programming over the last four years to provide thought leadership on the national level and to provide professional development for our members and the engineering education community at large. This new programming is funded via new fee-based opportunities via the Learning Services and also via significant new external funding from both government and private foundations which enables participants to attend at no cost. Overall, over $55 M in new external funding has been awarded to proposals submitted by the Professional Services departments from 2020-present. Below is a listing of some of the programs with their impact:

Education and Career Development Department

Current Fee-based Program Updates

- The Learning Services department launched two new courses: "Essentials of Effective Manuscript Development" and "Mixed Methods in Engineering Education Research".
    - IMPACT AND REACH: Since its launch in August 2020, Learning Services has served 2,168 participants across 40 programs.

Current Sponsored Program Updates

- NSF Engineering Education and Centers: Stewarding a Community of Scholars, Leaders and Innovators
    - Hosted the ERC Biennial Meeting, EEC Grantees Conference, and RED Consortium Meeting in September 2023 for 500+ attendees
    - Three events scheduled for 2024:
        - ERC Biennial Meeting, EEC Grantees Conference, and RED Consortium Meeting (September 2024)
        - Virtual RET Site Participant Poster Session (July 2024)

    - IMPACT AND REACH: Through this agreement, we have engaged 1,700+ EEC grantees and stakeholders across 14 in-person and virtual events.
- 2024 Ideas Lab: Personalized Learning
- 2024 Engineering CAREER Proposal Workshop
- Capacity Building for Research at Minority Serving Institutions (CyBR-MSI) 2024 events: the cohort four of the MSI CISE Proposal Development Workshop and the cohort two of the Institutional Research Readiness Community of Practice (IRR-CoP) Workshop and the first PI meeting for three cohorts of successful NSF MSI CISE awardees

Innovation and Strategic Direction (ISD) Department

- ***Current Sponsored Program Updates***

  Archival Publication Authors Workshop for Engineering Educators, funded by Kern Family Foundation
    - APA-ENG is a program aimed at increasing the capacity of engineering faculty to produce competitive manuscripts for refereed journals and other publications.
    - Cohort I is culminating with 10 faculty teams finalizing manuscripts for submission. Cohort II will begin in March 2023 with a Networking, Ideation and Collaboration Workshop.
    - An in-person workshop was presented at the KEEN 2024 Conference
- **Engineering for One Planet-Mini Grant Program, funded by the Lemelson Foundation**
    - EOP-MGP is designed to support faculty teams as they develop and pilot curricula that focuses on instilling concepts of sustainability into higher education programming.
    - The faculty teams that were awarded mini grants from Cohort I showcased project work at an online symposium open to the public in January 2023.
    - Impact: 48 faculty members used the EOP framework to develop/modify 34 courses across 13 institutions, reaching 1615 students in their pilots. Attendees of the public Symposium ranged from interested parties to deans, exceeding 150 participants.
- **Defining and Building the Engineering Workforce of the Future, or Future-Ready Engineering Ecosystem, funded by NSF**
    - The objective of FREE is to define the startup phase of establishing a sustainable Future-Ready Engineering Ecosystem composed of education, policy, and private sector collaborations, that will be necessary to maintain U.S. technological leadership.
    - ASEE held a second set of online convenings in October 2022 with over 150 attendees focused on developing a rubric for action to supplement the taxonomy of competencies derived from an earlier convening.
    - A list of all attendees from the above-mentioned FREE convenings and their institutions (beyond Senior Personnel) can be found at the following link.
    - Separately, ASEE also hosted 2 virtual meetings in November 2022 to publicize the pilot partnership program Advanced Chip Engineering Design and Fabrication (ACED Fab), welcoming 273 registrants, respectively. Participants and their institutions can be provided upon request.

- **Engineering the Inclusive Mindset for the Future: A Blueprint for Systemic Change in Engineering Education, funded by NSF**
    - With broad participation from stakeholders, this project sets out to define a plan of action for achieving changes in engineering education to meet the needs of the future.
    - A convening is scheduled for several dates in February-March 2023, where over 100 thought leaders will come together to address six identified areas of need.
    - Small meetings are being held at NAE headquarters for the writing team with subject matter experts to inform the Bluepoint report.
- **ADVANCE Partnership: Engineering Deans' Gender Equity Initiative: Aligning Systems to Ensure Inclusion and Equity in Advancement of Faculty, funded by NSF**
    - The KnowlEDGE Initiative sets out to catalyze change in promotion and tenure processes, ultimately to ensure inclusive and equitable success of diverse women engineers.
    - An extension of ASEE's Engineering Deans Gender Equity (EDGE) Initiative, this initiative launched applications for change teams in Spring 2023 and the Community of Practice is underway.
- **Engineering for One Planet-Mini Grant Program Continuation, funded by the Lemelson Foundation**
    - Based on the success of the inaugural cohort, the Lemelson Foundation awarded ASEE with an extension grant to expand the program and support two additional cohorts.
    - Cohort II is in its initial stages with the application period closing in February 2023. As of the end of January 2022, over 375 applications have been received—nearly quadrupling from the previous year.
- **INCLUDES Partnership: Engineering PLUS (Partnerships Launching Underrepresented Students, funded by NSF as subaward from Northeastern University**
    - Eng+ aims to aims to achieve a national target of 100,000/30,000 (BS/MS-PhD) degrees for underrepresented minorities and women by 2026.
    - ASEE will leverage the Deans Diversity Pledge and ASEE Diversity Recognition Program to develop a critical mass of institutional partners able to collectively reach the target number of degree recipients.
    - ASEE supports the STEM PEERS and the development of partnerships via ASEE's large reach.
- **Increasing Minority Presence within Academia through Continuous Training at Scale, funded by NSF as subaward from Georgia Tech**
    - IMPACTS sets out to establish an Inclusive Mentoring (IM) Hub to aid faculty members from underrepresented groups to navigate and succeed in the preparation, promotion, and promotion processes.
    - ASEE will provide the core means of soliciting participation in IMPACTS across U.S. engineering academia, as well as using prior constructs to implement and monitor an Inclusive Mentoring Hub.
- **Developing a National Framework for Recognition of Engineering and Engineering Technology Faculty Instructional Excellence, funded by NSF**
    - The goal of this project is to recognize and highlighting undergraduate teaching excellence in the fields of engineering and engineering technology, in turn, increasing

the retention rate of students and providing better-prepared technical workers for industry.
    - ASEE will facilitate the identification of senior engineering faculty across engineering disciplines to serve as mentors to untenured and newly tenured faculty from underrepresented groups.
- **Minority Mentoring Program (MMP), funded by Chevron**
    - MMP is a 9-month program designed to support engineering educators from underrepresented, underserved groups at all career stages through Guided Professional Development and a Community of Practice.
    - The inaugural cohort launched in March 2023 with 25 women of color early in their careers as engineering faculty.

Fellowships and Research Opportunities (FRO)

- ***NRL Postdoctoral Fellowship Program:***
    - This program places engineering postdoctoral fellows at this government lab. Funded by DOD/NRL.
    - Received approval to begin advance drawdowns for participant and administrative expenses in October 2022, which had positive impact on ASEE cashflow.
    - Of all program participants NRL estimates that over 75% convert to federal employees, which fulfills the purpose of the program. The remaining 25% return to academia or industry.
- ***IPERF/NSF Postdoctoral Fellowship Program:***
    - This program places postdoctoral fellows at SBIRs funded by NSF. (IPERF.asee.org)
    - Delivered multiple webinars with experts from entrepreneurial world. Managed regular IPERF-webinars as engagement sessions to potential candidates.
    - Delivered publications & presentations during last few months:

        "Expand Underrepresented Participation in High-Tech Start-Ups." Proceedings of the CIEC 2023 conference, Feb.8, 2023.

- ***EcoCAR Mobility Challenge:***
    - This award supports engineering contests for campuses in the area of sustainable mobility. It is a joint program between and funded by ANL, General Motors and Mathworks. There are five programs with the newest being a battery competition with Stellantis and ANL. (Ecocar.asee.org)
- ***eFellows Postdoctoral Fellowship Program, funded by NSF:***
    - The goal of this program help new engineering Ph.D graduate navigate the challenging job market due to the COVID pandemic emergency and keep them as researchers in their technical fields by placing them in postdoctoral fellowships at campuses across the country and providing each cohort with centralized professional development and mentoring. (Efellows.asee.org)
    - Cohort One has completed their first 10 professional development webinars with concurrent activities, as prompted by the exercises developed by ASEE's Learning Services team within the ASEE HUB.

- Cohort One has completed both their Opening Meeting Experience as well as their Mid-Program Meeting Experience where they presented posters about their eFellows-related research to all their colleagues.
- Cohort Two has started their appointments at their new research institutions and started their professional development webinar series.
- The ASEE eFellows Team launched an "eFellows Broader Impact" website that will be a public-facing site containing information about eFellows who have left the program to start new jobs and more information about the personal stories provided by the currently active eFellows to demonstrate how the eFellows Program has helped the primary demographic it aims to serve (i.e. groups that have been historically underrepresented in STEM). The information, data, and stories that will populate the "eFellows Broader Impact" website will also be consolidated and presented to NSF with the goal of obtaining funds for (at least) a third cohort.
- ASEE received an award to fund a cohort three and applications are being accepted.

Institutional Research, Analytics and Informational Technology (IRA)

- Profiles Survey
- Faculty Salary Survey
- IT reorganization and support

Licensure

ASEE Statement on Professional Licensure of Engineering Technology Program Graduates
February 2, 2020
ASEE strongly supports the position 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.

ASHRAE 2024 Report to NCEES POLC

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 53,000 members worldwide who make up our great society and strive to fulfill our mission and support our vision. Our society is led by our 2023-24 President Ginger Scoggins, P.E., Fellow ASHRAE whose theme for this Society Year is "*Challenge Accepted: Tackling the Climate Crisis."*

2024 ASHRAE Winter Conference & AHR Expo

- In January of this year, ASHRAE held its 2024 Winter Conference in Chicago, Illinois at the Marriott Marquis Chicago.
- The Winter Conference technical program consisted of 11 conference tracks, 125 technical sessions, 20 ASHRAE Learning Institute courses, updates from Society leaders, tours, social events and livestreamed sessions for virtual attendees.
- Nearly 3,800 people registered to attend the conference.
- Three highest attended sessions:
    - Seminar 13: Thermal Energy Storage: A Critical Strategy for Decarbonization
    - Seminar 19: LIVESTREAM: Beneficial Electrification
    - Seminar 8: The Logical Way to Tap Into Decarbonization: Hydronic District Energy Systems
- The AHR Expo was held in conjunction with the annual meeting spanning an expansive 527,000 net square feet of exhibit space at McCormick Place.
- More than 1,860 exhibitors, including 344 international exhibitors, unveiling cutting-edge HVAC&R technologies, products and services. An estimated 50,000 people attended the Expo over the course of three days.

ASHRAE Membership

- 198 Chapters; 15 Regions
- In January, the Board of Directors approved the formation of Region XV which will be official at the start of the new Society Year, 1 July 2024. Region XV will consist of the following 12 Chapters and Section**:** India, Western India, ASHRAE Bangalore, Sri Lankan, Chennai, Pune, ASHRAE Mumbai, ASHRAE Deccan, Bangladesh, East India, Rajasthan, Chandigarh, and the Amaravathi Section.
- View the latest Society Snapshot at ashrae.org/about/society-snapshot

Decarbonization Conference

- The 2023 Decarbonization Conference for the Built Environment in Washington D.C., drew a sold out crowd of over 450 attendees, representing 10 countries.

AHR Expo Mexico

- The 2023 AHR Expo Mexico in Mexico City was one of the largest shows in the 25 year history of the event.

United Nations Climate Change Conference **(COP 28)**

- ASHRAE leadership participated in an official COP 28 Side Event titled *"Design Thinking, Global Standards, & Integrative Solutions for a Net Zero Built Environment*."
- The focus was on how the building sector plays a leadership role in reducing GHGs and present resources available from ASHRAE to help achieve carbon reduction goals.
- ASHRAE, and several of the world's leading building industry organizations, issued a letter to government representatives attending COP 28 committing to their leadership role in achieving net zero greenhouse gas emissions in all new buildings in operation by 2030 and pledging support for representatives in attendance.

Standard 241, Control of Infectious Aerosols

- In June 2023, Standard 241 was published.
- Standard 241 establishes minimum requirements to reduce the risk of airborne aerosol transmission, such as the SARS-COV-2 virus, which causes COVID-19, the flu virus, and other pathogens in buildings like single and multi-family homes, offices, schools, and healthcare facilities.
- Former White House COVID Response Coordinator Dr. Ashish Jha said it is *"…one of the most important public health interventions seen in years*" and the standard continues to receive worldwide attention.

Standard 228-2023, Standard Method of Evaluating Zero Net Energy and Zero Net Carbon Building Performance

- In April 2023, Standard 228 was published.
- Standard 228 sets requirements for evaluating whether a building or group of buildings meets a definition of "zero net energy" or a definition of "zero net carbon" during building operation.

Task Force For Building Decarbonization (TFBD)

- The ASHRAE TFBD introduce two best practice guides: Grid-Interactive Buildings guide and Building Performance Standards guide. Additional guides will be released this year focusing on Whole Life Carbon, Heat Pump application, Design and Operation.
- Decarbonization videos are available on the ASHRAE YouTube Channel, with new content uploaded every other month.
- The BOD approved the ASHRAE TFBD will transitioning to the Center of Excellence for Building Decarbonization.

ASHRAE Research Promotion

- The 2022-23 campaign raised a total of $3.0 million.
- $1.9 million was raised for research.
- $12,000 was raised for Young Engineers in ASHRAE (YEA).
- $29,000 was raised for Education.
- $8,900 was raised for Decarbonization efforts.
- Life Members Club raised a total of $45,000.
- College of Fellow raised a total of $6,000.
- ASHRAE Foundation added $735,000, including gifts raised through RP.
- $653,581 was raised to support ASHRAE programs.

ASHRAE Undergraduate Program Equipment Grants

- In 2023, ASHRAE awarded $163,000 in Undergraduate Program Equipment Grants for 2023-24 academic year to fund 34 projects.
- The program provides grants to engineering, technical and architectural schools worldwide to increase student knowledge, learning and awareness of the HVAC&R industry through the design and construction of senior projects.

ASHRAE Scholarships

- ASHRAE awarded 39 Society Scholarships totaling $209,500 for the 2023-24 academic year.

Government Affairs

- ASHRAE Government Affairs team has conducted over 100 outreach events during Society Year 2023-24, on the global, federal and state levels.
- A combined total of 35 messages of support have been produced during Society Year 2023-24.
- Government Affairs Update bi-weekly newsletter provides updates on government activities. Subscribe online or by emailing GovAffairs@ashrae.org.

Recent ASHRAE Publications

- *ASHRAE Standard 90.1-2022, Energy Efficiency Standard for Sites and Buildings Except Low-Rise Residential Buildings*
- *Heating, Ventilating, and Air-Conditioning Design Guide for Department of Energy Nuclear Facilities, Second Edition*
- *ASHRAE Design Guide for Commercial Kitchen Ventilation: Best Practices for Design and Operation*
- ASHRAE Guideline 12-2023, *Managing the Risk of Legionellosis Associated with Building Water Systems*
- *ASHRAE GreenGuide: Design, Construction, and Operation of Sustainable Buildings, Sixth Edition*
- *ASHRAE Design Guide for Dedicated Outdoor Air Systems, Second Edition*
- *Standard 228-2023, Standard Method of Evaluating Zero Net Energy and Zero Net Carbon Building Performance*
- *ASHRAE Pocket Guide, 10th Edition*

ASHRAE Partnerships and Collaborations

- ASHRAE collaborates with like-minded organizations throughout the global built environment. Here are some of ASHRAE partnerships from 2023:
    - ASHRAE and The United Nations Environmental Program (UNEP) Sign 2024-2025 Work Plan
    - Chartered Institute of Building Services (CIBSE) Strategic Partnership Agreement
    - International Energy Agency – Energy in Building and Communities Program (IEA-EBC)
    - Indian Green Building Council (IGBC) Memorandum of Understanding
    - Empower Energy Solutions Memorandum of Understanding

ASME/NCEES POLC Meeting Report
February 2024

ASME Membership Profile

- ASME currently has 70,000 members, including 17,000 student members and 10,000 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

- Mechanical Engineering Education Summit, March 18-21, 2024, Atlanta, GA
- ASME Student Conference "EFest" Virtual March 16, 2024
- ASME Student Conferences "EFx' In-Person
  - April 7, 2024, W. Lafayette, IN
  - April 12-13, 2024, Forest, VA
  - April 13, 2024, Flagstaff, AZ
  - April 20, 2024, Blacksburg, VA
  - April 21, 2024, Charlotte, NC
  - April 27-28, 2024, Boise, ID
  - May 3-4, 2024, Green Bay, WI
- ASME Annual Meeting, June 1-4, 2024, Long Beach, CA
- International Mechanical Engineering Congress & Exposition (IMECE), November 17-21, 2024, Portland, OR.

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 five high-level recommendations have officially become part of the ASME Engineering Education advocacy strategy:
  - Richer and more extensive practice-based engineering experience for students
  - New balance of faculty research/practice skills in mechanical engineering programs
  - Greater cultivation of collaborative inclusion, diversity, creativity and innovation among students and faculty
  - Development of students' professional and communication skills to a higher standard
  - Increased flexibility in mechanical engineering programs

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 Coalition, called Licensing That Works, is pleased that the concept of MOE does not appear as a requirement in NCEES's Position Statement 23, "Future of Engineering Licensure."

The Coalition will continue to monitor the developments in this area. The societies in the Coalition are:

- 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.

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 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 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.

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. Over 5,000 individuals are trained annually.

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 68%-85% for first-time takers. The last full-year data in NCESS Squared showed a total of 10,390 individuals took the exam.
- The last full-year data in NCEES Squared showed a total of 3,203 individuals took one of the three mechanical PE exams. The pass rates for the exams for first-time takers ranged from 70% to 71% and for repeat takers, 47% to 49%.
- 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
- The exam blueprint/specification for the Mechanical / Plumbing PE Exam was approved at the last EPE meeting, so that exam will move along to the next step.

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 of 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.

  ASME Scholarships hit a record milestone for giving in Academic Year 2022-2023 with $628,000 in total giving to 176 students, at the graduate, undergraduate, and high school levels.

  ASME Scholarships continue to attract a diverse cohort of engineering students.
  40% of the scholarships were awarded to female engineers.
  45% of the scholarships were awarded to students of color

K through 12 STEM Programs

- ASME programs have provided curricula and STEM-aligned content to over 550,000 students within the U.S. at 3,706 K-12 schools.

- ASME provided 36 scholarships totaling $152,000 scholarships to graduating high school students.

- ASME reached more than 3,500 students in over 90 K-12 schools with the DropMEIn program where working engineers visit with students to introduce them to engineering.

Threats to Licensure

ASME does not have a specific initiative dealing with threats to licensure. However, ASME's local sections stand ready to assist if legislation is proposed in this area.

ASPE 2024 Report to the NCEES POLC

Submitted by David D. Dexter, PE, FNSPE, FASPE, CPD, CPI, LEED BD+C and Billy Smith, FASPE – Executive Director/CEO

The American Society of Plumbing Engineers (ASPE) is the international organization for professionals skilled in the engineering, design, specification, installation and inspection of systems in support of plumbing and piping infrastructure. ASPE is dedicated to the advancement of engineering in support of the science of plumbing, to the professional growth and advancement of its members and the health, welfare, and safety of the general public. ASPE views its engagement with the National Council of Examiners for Engineering and Surveying (NCEES) and its participation in the POLC as an opportunity to interact with the NCEES and other engineering societies to advance professional engineering licensure. ASPE continues to appreciate the dedicated staff at the NCEES for all its hard work in supporting the continued development of professional registration throughout the various State and Territorial Boards. Over the last year, ASPE has completed the following activities designed to promote licensure and the profession of engineering:

ASPE Supports Plumbing Engineering's Roles to our Membership & Industry

The Society continues to disseminate technical data and information, sponsors activities that facilitate interaction with fellow professionals, and, through research and education, expands the base of knowledge of the plumbing engineering profession. ASPE members are leaders in innovative plumbing engineering design, effective utilization of materials and energy, and the application of advanced plumbing engineering techniques throughout the world.

Worldwide Membership - ASPE was founded in 1964 and currently has over 7300 members. Internationally, ASPE members are located in the United States, Canada, Asia, Mexico, South and Central America, the South Pacific, Australia, Europe, Africa, Caribbean and the Middle East. They represent an extensive network of experienced engineers, designers, contractors, code officials, manufacturers, and manufacturers' representatives interested in advancing the industry, the discipline, and their careers. ASPE is at the forefront of technology. In addition, ASPE represents members and promotes the profession among all segments of the construction industry.

ASPE provides to approximately 18,800 industry contacts the ASPE Pipeline which maintains consistent and updated communications' to our membership and the industry at large with monthly columns such as "Professional Engineer's Perspective" along with a quarterly column titled "Engineer's Notebook." This is augmented by the information disseminated to the membership through monthly Chapter meetings and newsletters.

Continuing Education Participation

ASPE provides Educational opportunities for our membership and industry via Technical sessions as part of our annual events such as our even year Convention & Expo and off year Technical Symposium as well as an extensive library of technical webinars housed on ASPE's Education Learning Management System, which is part of our Society website, providing the needed continuing education to maintain professional development of our members.

ASPE continuously develops and updates the volumes that make-up the "Plumbing Engineering Design Handbooks" relative to all areas of commercial and healthcare facilities that are provided for purchase to assist our members and industry professionals with the latest criteria. ASPE also develops, maintains (to maintain applicability) updates on a continuing basis technical and design books and manuals applicable and beneficial to those practicing in the plumbing discipline. ASPE has developed and maintains the latest in credentialing and study materials as part of ASPE's certification programs for its members.

ASPE provides online and in-person educational sessions to our members and industry via 64 ASPE Chapters & 3 Satellite Chapters monthly technical meetings to gain continuing education credits. ASPE feels it is important to advance educational process to the industry through its resources. While the concerns for COVID-19 restrictions and protocols have lessened, ASPE continues to work with its Chapters to encourage the sharing and use of virtual meetings as appropriate for the area in which the Chapter is located.

An exciting Educational opportunity that ASPE has developed and implemented is of our in-person Medical Gas Workshops that are held quarterly in locations around the country. The Workshop contains 32-hours of extensive training over 4-days, gaining a certificate of participation which confirms the opportunity for any of the participants to then plan to sit for a Medical Gas credential.

A new component to ASPE's Educational opportunities is that we now offer an online version of our Medical Gas Workshops. The online Workshop also contains 32-hours of extensive training which can now be done at the registrants timeframe. A certificate of participation to confirm the opportunity of participants to plan to sit for a Medical Gas credential.

Industry Advocacy Efforts

ASPE is extensively involved in the Codes & Standards development process as an ANSI-accredited SDO (Standards Development Organization) which is most helpful relative to some of the challenging and significant issues today such as Legionella, COVID-19, and biofilms in potable water systems along with the processes required in reopening commercial buildings or offices after long periods of closure. Accordingly, ASPE is involved as a participating organization on multiple "Pandemic or Epidemic Task Forces" that have been established recently to help analyze all aspects of the built environment and assist in finding solutions to

reduce the risks posed by pandemics to support public health guidance. ASPE has completed and issued a "Legionella Design Guide" to assist our membership and the industry relative to our mission statement of protecting the health, safety, and welfare of the public.

To confirm ASPE's extensive advocacy efforts, the following are industry partner associations that ASPE participates with: ARCSA, ASME, ASHRAE, ASSE, ASTM, AWWA, CIPH, CSA, IAPMO (UPC & We-Stand), ICC (IPC), NIBS, NSF International, PDI, PMI, PPI, WPC, WQA.

ASPE serves as a Co-Convener of the Emerging Water Technology Symposium (EWTS) and the Plumbing Industry Leadership Council (PILC). As a Co-Convener, ASPE feels both these initiatives are important to our membership and industry to ensure the industry has a voice in the most important issues facing the plumbing engineering profession; therefore the needed educational opportunities are relevant.

Promoting P.E. Licensure

ASPE strives to represent our members and to promote the profession among all segments of the industry. ASPE wholeheartedly understands and supports the protection and advancement of licensure of the Professional Engineer while supporting and encouraging the PE registration and applicable processes, promoting ethics**,** continuing education, and the advancement of the role of the professional engineer. ASPE's PEWG (Professional Engineering Working Group), continues to work with NCEES through the PAKS (Professional Activities and Knowledge Study) process to develop a "Plumbing/Piping" module exam within the Mechanical Engineering suites of exams.

Based on the results of the results of the 2023 PAKS survey, the initial specifications for the Plumbing/Piping module have been developed and submitted to the Examiners for Professional Engineers (EPE) Committee for their consideration. Upon the recommendations from the EPE the initial process for the development of exam questions may begin.

Report to the NCEES Participating Organizations Liaison Council

From: American Society for Photogrammetry and Remote Sensing (ASPRS)
Frank Taylor, CP, RPS; POLC Representative
Karen Schuckman, PLS, CP, CMS, Executive Director

Date: 02/29/2024

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

Geo Week 2024

The annual Geo Week conference was held in person February 11th-13th at the Colorado Convention Center in Denver, CO. Geo Week is a combination of the ASPRS, ISPRS (International Society for Photogrammetry and Remote Sensing), AEC Next Technology Expo, USIBD (US Institute of Building Documentation) and WGIC (World Geospatial Industry Council). The conference had over 200 vendors in the exhibit hall and over 3400 attendees representing 49 states and 45 countries. The conference had over 140 speakers including keynote presentations from ESRI and others.

ASPRS Positional Accuracy Standards for Digital Geospatial Data, Edition 2, Version 1.0

After a thorough review, several working group meetings and public comment, ASPRS has published the updated ASPRS Positional Accuracy Standards for Digital Geospatial Data. The updated standard was published on August 23, 2023.

The “Positional Accuracy Standards Working Group” was chaired by Dr. Qassim Abdullah, Vice President and Chief Scientist of Woolpert, Inc. The group included representatives from academia, USGS, Engineers, Surveyors, Photogrammetrists and Geographers.

Edition 1 of the ASPRS Positional Accuracy Standards for Digital Geospatial Data was published in November 2014. In the years since, users expressed concerns and suggested revisions based on their experience applying the Standards in real-world situations. In addition, technologies have evolved in such a way as to challenge the assumptions upon which Edition 1 was based.

In 2022, ASPRS established a formal Positional Accuracy Standards Working Group under the Standards Committee to evaluate user comments, consider technology advancements, and implement appropriate changes to the Standards. The following individuals were appointed to the Positional Accuracy Standards Working Group:

Chair: Dr. Qassim Abdullah, Vice President and Chief Scientist, Woolpert, Inc.
Members:
- Dr. Riadh Munjy, Professor of Geomatics Engineering, California State University, Fresno
- Josh Nimetz, Senior Elevation Project Lead, U.S. Geological Survey
- Michael Zoltek, National Geospatial Programs Director, GPI Geospatial, Inc.
- Colin Lee, Photogrammetrist, Minnesota Department of Transportation

The ASPRS Positional Accuracy Standards for Digital Geospatial Data are designed to be modular in nature, such that revisions could be made and additional sections added as geospatial technologies and methods evolve. Additionally, the Standards are designed to recommend best practices, methods, and guidelines for the use of emerging technologies to achieve the goals and requirements set forth in the Standards. With support from the ASPRS Technical Divisions, the primary Working Group established subordinate Working Groups to author Addenda for best practices and guidelines for photogrammetry, lidar, UAS, and field surveying. The subordinate Working Group members and contributors are credited in each Addendum, as appropriate.

Summary of Changes in Edition 2

Important changes adopted in Edition 2 of the Standards are as follows:

1. Eliminated references to the 95% confidence level as an accuracy measure.

Reason for the change: The 95% confidence measure of accuracy for geospatial data was introduced in the National Standard for Spatial Data Accuracy (NSSDA) published by the Federal Geographic Data Committee in 1998. This measure was carried forward in the ASPRS Guidelines for Vertical Accuracy Reporting for Lidar Data published in 2004, as well as in Edition 1 of the ASPRS Positional Accuracy Standards for Digital Geospatial Data published in 2014. However, RMSE is also a way to express data accuracy, and it is typically reported alongside the 95% confidence level because the two are derived from the same error distribution. As a matter of fact, users need to compute RMSE first in order to obtain the 95% confidence measure. The reporting of two quantities representing the same accuracy at different confidence levels has created confusion for users and data producers alike.

Justification for the change: The RMSE is a reliable statistical term that is sufficient to express product accuracy, and it is well understood by users. Experience has shown that the use of both RMSE and the 95% confidence level leads to confusion and misinterpretation.

2. Relaxed the accuracy requirement for ground control and checkpoints.

Reason for the change: Edition 1 called for ground control points of four times the accuracy of the intended final product, and ground checkpoints of three times the accuracy of the intended final product. With goals for final product accuracies approaching a few centimeters in both the horizontal and vertical, it becomes difficult, if not impossible, to use RTK methods for control and checkpoint surveys, introducing a significant burden of cost for many high-accuracy projects.
Justification for the change: As the demand for higher-accuracy geospatial products grows, accuracy requirements for the surveyed ground control and checkpoints set forth in Edition 1 exceed those that can be achieved in a cost-effective manner, even with high-accuracy GPS. Furthermore, today's sensors, software, and processing methods have become very precise, diminishing the errors introduced in data acquisition and processing. If best practices are followed, safety factors of three and four times the intended product accuracy are no longer needed.

3. Required the inclusion of survey checkpoint accuracy when computing the accuracy of the final product.

Reason for the change: Since checkpoints will no longer need to meet the three-times intended-product accuracy requirement (see item 2 above), the error in the checkpoints survey may no longer be ignored when reporting the final product accuracy. This is especially important, given the increasing demand for highly accurate products—which, in some cases, approach the same order of magnitude as the survey accuracy of the checkpoints. Therefore,
checkpoint error should be factored into the final product accuracy assessment that is used to communicate the reliability of resulting final products.

Justification for the change: Errors in the survey checkpoints used to assess final product accuracy, although small, can no longer be neglected. As product accuracy increases, the impact of error in checkpoints on the computed product accuracy increases. When final products are used for further measurements, calculations, or decision making, the reliability of these subsequent measurements can be better estimated if the uncertainty associated with the checkpoints is factored in.

4. Removed the pass/fail requirement for Vegetated Vertical Accuracy (VVA) for lidar data.

Reason for the change: Data producers and data users have reported that they are challenged in situations where Non-Vegetated Vertical Accuracy (NVA) is well within contract specifications, but VVA is not. As explained below, factors affecting VVA are not a function of the lidar system accuracy; therefore, only NVA should be used when making a pass/fail decision for the overall project. VVA should be evaluated and reported, but should not be used as a criterion for acceptance.

Justification for the change: Where lidar can penetrate to bare ground under trees, the accuracy of the points, as a function of system accuracy, should be comparable to lidar points in open areas. However, the accuracy and the quality of lidar-derived surface under trees is affected by:

. 1) the type of vegetation where it affects the ability of lidar pulse to reach the ground,
. 2) the density of lidar points reaching the ground,
. 3) and the performance of the algorithms used to separate ground and above-ground points in these areas.

Furthermore, the accuracy of the ground checkpoints acquired with GPS surveying techniques in vegetated areas is affected by restricted satellite visibility. As a result, accuracies computed from the lidar-derived surface in vegetated areas are not valid measures of lidar system accuracy.

5. Increased the minimum number of checkpoints required for product accuracy assessment from 20 to 30.

Reason for the change: In Edition 1, a minimum of 20 checkpoints are required for testing positional accuracy of the final mapping products. This minimum number is not based on rigorous science or statistical theory; rather, it is a holdover from legacy Standards and can be traced back to the National Map Accuracy Standards published by the U.S. Bureau of the Budget in 1947.
Justification for the change: The Central Limit Theorem calls for at least 30 samples to calculate statistics such as mean, standard deviation, and skew. These statistics are relied upon in positional accuracy assessments. According to The Central Limit Theorem, regardless of the distribution of the population, if the sample size is sufficiently large ($n \geq 30$), then the sample mean is approximately normally distributed, and the normal probability model can be used to quantify uncertainty when making inferences about a population based on the sample mean. Therefore, in Edition 2, a product accuracy assessment must have a minimum number of 30 checkpoints in order to be considered fully compliant.

6. Limited the maximum number of checkpoints for large projects to 120.

Reason for the change: Since these Standards recognize the Central Limit Theorem as the basis for statistical testing, there is insufficient evidence for the need to increase the number of checkpoints indefinitely as the project area increases. The new maximum number of checkpoints is equal to four times the number called by the Central Limit Theorem.

Justification for the change: According to the old guidelines, large projects require hundreds, sometimes thousands of checkpoints to assess product accuracy. Such numbers have proven to be unrealistic for the industry, as it inflates project budget and, in some cases, hinders project executions, especially for projects taking place in remote or difficult-to-access areas.

7. Introduced a new accuracy term: “three-dimensional positional accuracy."

Reason for the change: Three-dimensional models require consideration of three-dimensional accuracy, rather than separate horizontal and vertical accuracies. Edition 2 endorses the use of the following three terms:

- Horizontal positional accuracy
- Vertical positional accuracy
- Three-dimensional (3D) positional accuracy

Justification for the change: Three-dimensional models and digital twins are gaining acceptance in many engineering and planning applications. Many future geospatial data sets will be in true three-dimensional form; therefore, a method for assessing positional accuracy of a point or feature within the 3D model is needed to support future innovation and product specifications.

8. Added Best Practices and Guidelines Addenda for:

- General Best Practices and Guidelines
- Best Practices and Guidelines for Field Surveying of Ground Control and Checkpoints
- Best Practices and Guidelines for Mapping with Photogrammetry
- Best Practices and Guidelines for Mapping with Lidar
- Best Practices and Guidelines for Mapping with UAS

This summarizes the most significant changes implemented in Edition 2 of the ASPRS Positional Accuracy Standards for Digital Geospatial Data.

This standard is used by Federal, state, and local agencies as well as the Tennessee Valley Authority (TVA).

The new standards can be downloaded via the following link:

https://publicdocuments.asprs.org/PositionalAccuracyStd-Ed2-V1

NSRS Modernization

ASPRS has created a working group to begin the important task of educating the industry on the NGS initiative to replace all three North American Datum of 1983 (NAD 83) frames and all vertical datums (including the North American Vertical Datum of 1988) with four new terrestrial reference frames and a geopotential datum.

Certification News

ASPRS Certification Program (from the ASPRS website)

"Scientist" Certifications (includes Certified Photogrammetrist) *are appropriate for applicants whose work involves the exercise of professional judgment frequently based on knowledge acquired through higher leaning, generally of a non-routine character. The term implies one who has a broad knowledge of the geospatial sciences to a degree which supports the review and analysis of work being done, as well as a thorough understanding of the underlying theories, principles and systems supporting the work being performed. Additionally, said individual has the knowledge and ability to both plan and perform and/or direct all such operations in the category; this person is responsible for work performed by those under him/her. The review committee looks for a broad industry exposure, external to the employment realm, that gives validation and credibility to the activity, skills, knowledge, and mastery of the specific certification category being pursued. This is usually categorized as a combination of higher education, outside teaching, publication, and/or independent industry engagement related to the specific specialty certification being pursued. This can include the performance of research and development, conference presentations, professional society activity (ASPRS or other societies) workshops and specialty courses or the publication of articles related to the specialty area being considered.*

The Professional Scientist level of certification requires a minimum of 6 years of experience in the specialty category for which candidates apply.

The Evaluation for Certification Committee and the Professional Practice Division of ASPRS are collaborating to create new exam questions for the various ASPRS certification exams.

This effort involves the following steps:

- Outreach to academia to see if they would be willing to "share" potential questions from existing exam banks. This effort would initially request the questions only (not correct answers) to determine if they were deemed appropriate by members of the committee.
- Establishment of a group of volunteers to document the "Body of Knowledge" for each exam topic area.
- Establishment of a group of volunteers to assist in the creation and approval of new examination content.

Prometric Testing

Per meeting with Mike Zoltek (ASPRS), Danielle Blanchard (ASPRS), Amy Campo (Prometric) and Zachary McNatt (Prometric) the following changes were made related to the ASPRS Certification computer-based examination process:

1. The Scientific Calculator was added to all 11 computer-based testing programs administered by ASPRS. Any candidates taking an exam as of 11/8/2023 will now be able to access the embedded calculator in the upper-right-hand side of the screen while completing their exam.
2. Note boards were added to the permissible material to be taken into the examination room to allow for hand calculations and sketching problems.
3. Unscheduled test breaks were authorized. a. Candidate may eat, drink, use the restroom and/or take medication during their breaks
b. Allowance of one clear container of liquid to be next to the candidate for water
4. Verified the allowance of one “bound reference material” to be taken into the exam and referenced during the examination.
5. Note: If a remote candidate leaves the camera view or accesses any personal items or electronic media, the exam will be terminated
6. Verified that Volunteer test takers do not need to submit to at-home testing standards. This is only for those who are a part of the evaluation of the current exam content.

COUNCIL OF ENGINEERING AND SCIENTIFIC SPECIALTY BOARDS

2024 CESB Report to POLC

CESB Status

CESB membership includes 12 member boards and 3 associate member organizations. These boards operate a total of 55 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 55 accredited certification programs, according to their categories, consist of:

Licensed engineers 9
Graduate engineers 1
Engineering-related specialties 21
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.

In 2022, CESB underwent a strategic planning session. The member boards met with the facilitators to develop the 2022-2023 strategic plan. The Executive Committee and CESB Office are working together to fulfil the tactics and goals.

CESB also hired a psychometrician to review the 4e and 4g standards. After several meetings, CESB developed new standards and those were incorporated into their Standards at the 2023 Business Meeting.

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.

February 6, 2024

President Laura Sievers, P.E.
National Council of Examiners for Engineering and Surveying
200 Verdae Boulevard
Greenville, SC 29607

Re: **IEEE-USA 2024 Report to the NCEES Participating Organizations Liaison Council ("POLC")**

Dear President Sievers:

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 2023 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
Several volunteers from the IEEE-USA Licensure and Registration Committee will represent IEEE-USA at the upcoming NCEES Annual Meeting. I am supportive of their attendance and if I can be of assistance to NCEES, please let me know.

Participating Organizations Liaison Council (POLC)
One member of the IEEE-USA Licensure and Registration Committee ("LRC") continues to attend the annual POLC meetings. John W. Steadman, Ph.D., P.E. will represent IEEE-USA at the March 2024 POLC meeting.

Examinations for Professional Engineers ("EPE") Committee

EPE Committee IEEE-USA Representative: Ademola (Peter) Adejokun, P.E.

A two-day EPE meeting will be held in Greenville, SC on February 9-10 of 2024. IEEE-USA EPE Representative Ademola (Peter) Adejokun will attend this meeting. This will be the first meeting of EPE this year. In 2023 the EPE committee addressed all charges, to include oversight of the exam development process and PAKS studies. This included review of progress on the current PAKS survey for the Electrical and Computer Engineering PE exam. Recommendations were provided to NCEES leadership and to Pearson Vue as appropriate.

Electrical and Computer Engineering (ECE) Exam Committee:
The ECE Exam Committee oversees three PE exams that all run in a computer-based testing mode at Pearson Vue testing centers. The ECE Power Exam is available for testing year-round at Pearson Vue testing centers. The ECE Computer Engineering Exam is available one day a year, in October. The ECE Electronics, Controls, and Communications Exam has been offered once a year in October but will move to once a year in April beginning in April 2024. IEEE-USA informed its members of this change through our

IEEE-USA Insight publication. This change will assist with scheduling and workloads for both Pearson Vue and NCEES publications and staff. The ECE Exam Committee met in person in January and June of 2023, and in January 2024.

Electrical and Computer PE Exam Committee ("ECE") Chair: Ray Heintel, P.E/ RCDD, PSP

- Power Exam Committee Chair: Gabriel Fleck, P.E.
- Electronics, Communications and Controls Co-Chairs: Gregg Vaughn, P.E. & Julie Hurtig, P.E.
- Computer Exam Chair: Kai Chen, P.E.

The primary activity of the ECE Exam Committee in the past year has been:

- Review and revise or reject questions that performed poorly in the pre-test.
- Write new items in the exam specification areas that need more questions in the bank.
- Perform a group committee review of active items that can be improved based on their statistics.

At each meeting of the PE ECE Exam Committee, members receive an update on the results of the most recent offering of each of the three exams, including pass rate and items that have been flagged for committee review.

Fundamentals of Engineering ("FE") Committee:

The FE Committee is responsible for preparing the FE exams for all disciplines of engineering. IEEE-USA continued to provide volunteers to develop items for the Electrical & Computer module of the Fundamentals of Engineering (FE) Exam. The exam is available for testing year-round at Pearson Vue testing centers. The committee held in-person meetings in January, April, August, and November of 2023 at the NCEES Greenville office, along with a virtual meeting in March. The committee will meet quarterly in 2024, with in-person meetings scheduled for February, May, August and November in Greenville. Anne Clark remains as Electrical & Computer Module Chair until the end of 2024.

- Fundamentals of Engineering ("FE") Committee Chair: Joe Hanus, P.E.
- Fundamentals of Engineering ("FE") ECE Committee Chair: Anne Clark, P.E.

Professional Activities and Knowledge (PAKS) Survey

Every five to seven years NCEES conducts a survey to update the examination specifications for each of the examinations. This year a PAKS survey was conducted to update specifications for the PE Electrical Engineering exam. IEEE-USA and particularly the Licensure and Registration Committee was instrumental in assisting NCEES and Pearson Vue in the process, specifically in identifying licensed electrical engineers to respond to the survey. Most members of the L&R committee completed the survey and also contacted their colleagues asking them to take the survey. Meetings to take the survey results and make appropriate modifications to the exam specification will begin early in 2024. Most members of the EPE Exam Committee have agreed to participate in the first of those meetings, which will be virtual. This is a high stakes process because it determines the content of the Electrical PE exams for years and IEEE-USA plays a critical role in each part of the PAKS process.

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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/articles/category/careers/licensure-registration

In 2023 IEEE-USA published one article in IEEE-USA Insight:

- Professional Engineering Licensure Exam Dates – 12 July 2023

IEEE-USA Position Statement – Educational Requirements for Engineering Licensure
On 17th November 2023, IEEE-USA Board of directors adopted and issued the position statement on "Educational Requirements for Engineering Licensure". The position statement can be found using the following link: https://ieeeusa.org/assets/public-policy/positions/workforce/LicensureEducation1123.pdf

IEEE-USA Position Statement – Engineering Licensure
On 17th November 2023, IEEE-USA Board of directors adopted and issued the position statement on "Engineering Licensure". The position statement can be found using the following link: https://ieeeusa.org/assets/public-policy/positions/workforce/EngineeringLicensure1123.pdf

IEEE-USA Position Statement – Continued Professional Competence of IEEE's U.S. Members
On 17th November 2023, 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://ieeeusa.org/assets/public-policy/positions/workforce/ProfessionalCompetence1123.pdf

Next IEEE-USA L&R Committee meeting:
IEEE-USA L&R committee meets in person annually supplemented by meeting virtually at times based on the availability of members.

Sincerely,

Keith Moore, P.E.
2024 IEEE-USA President

cc:
B. David Cox, Chief Executive Officer, NCEES
Amber Orr, Vice President, Career and Member Services
David Cotton, Jr., P.E., Chair, IEEE-USA Licensure & Registration Committee
John Steadman, Ph.D., P.E., IEEE-USA POLC Representative

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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, this year, 2023, is the 75th anniversary of the founding of IISE with the first chapter formed in Columbus, Ohio. Today, there are 51 professional chapters of IISE, 256 student chapters in addition to chapters in Africa, Arabian Peninsula, ASIA, Canada, Central/South America, Middle East and North America. IISE is an international, nonprofit association that provides leadership for the application, education, training, research, and development of industrial engineering. ISEs figure out a better way to do things and work in a wide array of professional areas, including management, manufacturing, logistics, health systems, financial services, retail, service and ergonomics. They influence policy and implementation issues regarding topics such as sustainability, innovation and Six Sigma. And like the profession, ISEs are rooted in the sciences of engineering, the analysis of systems, and the management of people.

The Institute has over 20,000 members comprising students, practicing professionals, academics as well as retired members. Institute members and customers come from over 124 countries throughout the world.

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. Dr. Michels is a former college Dean and is currently the managing principal in an international consulting practice. 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 2023. One meeting was held virtually in February and an in residence meeting held at NCEES HQ in Greenville, South Carolina was held in August 2023. 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 2022 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)

The Industrial and Systems Engineering Professional Engineering examination was administered for the fourth time in the computer based format in the October 2023 examination. Approximately 112 licensing candidates signed up for the October 2023 CBT examination. The number of candidates first time passing rate for the fourth CBT administration of the ISE examination was 67%. This score is decreased somewhat with previous administrations of the ISE paper and pencil test administration, exclusive of the October 2019 test administration. Analysis by the examination committee determined

that the questions are of equal caliber of difficulty of previous examinations, however, the committee believes that the candidates failed to prepare in a manner and fashion consistent with the new computer based testing protocol. With computer-based testing, the committee is better able to develop examination questions that require a candidate to analyze a problem and then work a solution. This is, of course, different than a 4 answer multiple choice answer where the candidate has a 25% chance of guessing the correct answer. The committee is working hard, with NCEES direction, to develop more Alternative Item (AIT) test items, which require a test candidate to possess a more robust degree of analysis and principle understanding in order to solve the test question. This method ensures that only those candidates that do possess minimal engineering competency in the Industrial and Systems discipline will become licensed professional engineers.

EXAMINATION COMMITTEE PARTICIPATION IN LICENSING ADVOCACY

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.

The training division of the Institute of Industrial and Systems Engineers hosts both a live in-person and an online on demand review course for the PE examination each year. The live in-person course was held July 25-29, 2023 at IISE HQ in suburban Atlanta, Georgia. The live in-person course had 6 participants while the online on-demand course had 5 participants. There have been 35 online candidates to take the course 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 annual conference held in May 2022 in Seattle, Washington. 5 PE's served on a panel, attended by over 50 conference attendees. Interestingly, we found that many "senior" industrial and systems engineers have recognized the benefits of professional registration and have elected to become licensed after practicing in the profession for many years.

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
Setting the Standard for Automation™

ISA 2024 Report to the NCEES PARTICIPATING ORGANIZATIONS LIAISON COUNCIL (POLC)

By Gerald Wilbanks, P.E.

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 25,000 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 Participating Organizations Liaison Council (POLC), jurisdiction 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. This was the second year (2023) of a major transition as the control systems exam moved to a computer-based test (CBT). **The control systems professional engineer exam is one of the most popular of the Group II exams offered by NCEES based on the October 2023 statistics, with 221 first time test takers and a 57% pass rate and 60 repeat test takers with a 37% pass rate.**

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. This technical specification remained the same for the transition to the closed book CBT.

The **Control Systems PE Exam Committee** works with the NCEES Exam Engineer to conduct an item writing session, in preparation for the next administration. The October 24, 2024 administration was the second computer-based test (CBT) for the control systems professional engineer exam. *The plan calls for the upcoming exam administration to be on April 17, 2024, as the exam date moves from October.* **Also, the Control Systems Exam Committee completed and issued the revised version of the "Furnished Reference Handbook" for the computer-based testing for the control systems professional engineer exam.**

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, as well as, digital badges. Additionally, another certification is offered to practicing technicians in the automation field and it is called the Certified Control System Technician (CCST). This is also a computer-based test that is administered at various test centers located throughout the world, as well as, online. Additional information may be found online at Certification and Certificate Programs - ISA.

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 Durham, 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 accelerated the growth in ISA's online self-study virtual training offerings. 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. Additional information concerning the training opportunities may be found online at ISA Training Courses by Topic.

The Control Systems PE Exam is supported with various training and educational endeavors by ISA. A Study Guide has been developed, published, and was updated to its 7th edition for use in preparing for the CBT exam. This study guide provides information and practice problems for those preparing for the exam. **The revised Study Guide was 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 2022 as a live virtual instructor led (VILT) class, consisting of six sessions, four hours each. Additional information may be found online at Control Systems Engineering (CSE) PE Review (EN00)- ISA.

Also, an instructor assisted online training class was developed in 2014 that now consists of 21 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 2023 with good reviews and excellent participation.

All of the training classes and courses have been revised to reflect the changeover to CBT, and were available this past year. The **training and education** plans for 2024 essentially remain the same as 2023 with offerings of the three-day face to face class two times, and the VILT, six (four-hour sessions) instructor led review class to be offered two times. The online, instructor assisted course is being offered two times in 2024 also, starting in June. This is a 12-week course with 5 call-in sessions for problem solving and discussions among the participants.

The new test process with closed book, furnished reference manual, and 85 problems has resulted in some complaints and concern from the test takers. ISA feels that the current practice of having a "limited number" of test items included for quality checking was not communicated effectively. The limited number was actually 15 exam items, with 70 items graded for the final result. The passing per cent of 57% is quite a bit lower than prior pen and paper exams.

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.**

MI-SPS 2024 NCEES POLC REPORT

There are 806 Professional Surveyors licensed in Michigan. MI-SPS has approximately 400 Professional Surveyor members.

The MI-SPS 2024 Annual Meeting was held in Grand Rapid, MI, the Beer Capital of the USA and home of Founders Brewery. There were over 550 in attendance.

The Annual Meeting will offer over 16 CEU's.

Legislative Committee:

- The legislation of SB 337, the proposed PA 132 amendment, continues. The MI-SPS Legislative Committee engaged in productive discussions with the Realtors. addressing concerns related to specific language and its implications for the Land Division Act.
- Both parties found common ground on what would be appropriate for PA 132. Both are exploring a potential agreement that will provide improvements to the Land Division Act through joint efforts. Unfortunately, the bill did advance in the Senate during last year's legislation. Believes, however MI-SPS remains vigilant in pursuing the bill this legislation year.
- There are two identical bills, attempting to amend Land Division Act, HB 4836 in the House and SB 480 in the Senate, propose changes to division rights under Section 108. These bills seek to increase the number of divisions permitted for the first 10 acres from 4 to a significant 20. **MI-SPS is in opposition to this bill due to unintended consequences to the public and communities.**

Lobbyist

- MI-SPS works with the Profession Engineers and Licensed Architects to monitor legislative issues. Together the three professions established a (AESLC)
- AESLC had 3 meet and greets in September & October of 2023.

Scout Survey Merit Badge

- In 2023 MI-SPS helped 17 Scouts earn their Survey Merit Badges.
- In early 2023 2 surveyors helped 4 scouts, in early September 5 surveyors helped 10 scouts, and in October my Son Brett MI-SPS President and I will help 4 scouts earn their merit badges.

Young Surveyors Network (YSN)

- Throughout 2023 MI-SPS engaged young and newly licensed members to identify opportunities to provide new benefits to members and promoted them through the Young Surveyors Network.
- The MSPS Young Surveyors Network (YSN) has been active in Michigan. Member, Stacey (Fenn) Pollock, is the Michigan Coordinator and Representative to NSPS. Stacey attended the NSPS Spring and fall meetings and assisted with the Student Competition in Washington D.C.
- Ferris State University students took First Place for the second consecutive year.
- The YSN collaborated with IMAGIN (Improving Michigan's Access to Geographic Information Networks) and ITE (Institute of Traffic Engineers) to host several social events and networking opportunities.
- For the 2024 MI-SPS Annual Meeting the Annual and Education Committees organized a special Young Surveyors Network Reception at Woodrow's Duckpin located inside the Amway Grand Plaza Hotel. The receptions was well attended by young and veteran surveyors.

Outreach

- MI-SPS increased outreach to pre-college students via various career exploration days and extracurricular activities such as Scouts merit Badge.
- MI-SPS is committed to supporting surveying students and has expanded scholarship offerings as the Scholarship Fund continues to grow.
- The development and education offerings continue to expand for Technicians with the first ever Surveyors Boot Camp.
- On April 26th and 27th in Howell, Michigan Apprenticeship Steering Committee (MASCI) hosted over 4,000 students from 101 schools participating across the State at their annual Michigan Construction Career Days. This is a sizable event featuring contractors, labor unions, and special interest groups related to construction and infrastructure.
- Southeast Chapter members and various companies participated in the two-day event by attracting students with drones and robotic total station equipment and describing the unique roles of land surveyors and the path to becoming licensed as a Professional Surveyor.
- MICareerQuests has been a focus for the Society as it offers direct outreach to thousands of students, teachers, and school counselors throughout the whole state at each event. The Central Office organized and coordinated with Chapter leaders to attend MICareerQuest events across the state. Some of these events bring in thousands of students in a single day.
- This Year MI-SPS is offering the TWiST program to teachers throughout the State. The course was approved for teachers to receive continuing education credits.

Technician Surveyor Boot Camp (TSBC)

- TSBC was held September 11-14, 2023, with approximately 15 survey technicians taking the training course.
- Todd Horton taught the course.
- **The Course objectives:**

- designed to provide technicians with the essential skills and knowledge to excel in their role.
- This four-day course will apply theory through hands-on exercises and real-world simulations.
- Technicians will gain practical experience in conducting surveys, troubleshooting, common challenges, and working collaboratively in dynamic environments.
- This training will allow attendees to gain knowledge and apply it with confidence as they continue to grow and develop as a survey technician!

Membership

- The Membership Committee prioritized engaging recently licensed Surveyors and exploring options for future Michigan PS Exam preparation material. The Committee initially surveyed the new Professionals about their experience with preparing for the exam and probed for ideas on what resources would be helpful.
- After this the committee held a roundtable discussion with some of them to expand our understanding of the issues they experience when taking the exams and preparation material that we currently have available.
- This presents an opportunity to provide new benefits to our young members and those looking to get licensed in Michigan. Additionally, material prepared for the relevant law provides materials that may benefit all members.
- NSPS currently has a store via an online vendor, which is able to fulfill orders upon request. MSPS can now shop for apparel through the NSPS store and apply the MSPS logo. Check out https://business.landsend.com/store/nspsinc/ to place your orders.

Respectfully Submitted,
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Annual Report of the National Academy of Forensic Engineers (NAFE) to the NCEES Participating Organizations Liaison Council

March 2024

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 currently limited to Registered Professional Engineers and Canadian PEng who are also members of the National Society of Professional Engineers (NSPE) and meet certain forensic engineering practice criteria. They must also be members in an acceptable grade of a recognized major technical engineering society. Full membership includes the Diplomate Forensic Engineer (DFE) certification. NAFE also offers Associate Member and Affiliate grades of membership to those who do not yet qualify for Member grade. NAFE is a Chartered Affinity Group of 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.

Chief among the programs and activities of NAFE is the biannual conference where NAFE members meet in different locations around the United States for two full days of Forensic Engineering seminars. Sixteen 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 2023 NAFE Winter Conference was held at the Hotel Contessa, San Antonio Texas, on January 6-8, 2023.
- The 2023 NAFE Summer Conference was held at the Sheraton Kansas City Hotel at Crown Center in Kansas City, Missouri on July 14-16, 2023.
- The 2024 NAFE Winter Conference was held at the Shores Resort & Spa, Daytona, Florida, on January 19-21, 2023.
- The 2024 NAFE Summer Conference will be held at the Sheraton at Ann Arbor in Ann Arbor, Michigan on July 19-21, 2024. ***NAFE is accepting submissions for sessions until April 2, 2024.***

NAFE is a member of the Council of Engineering and Scientific Specialty Boards (CESB). NAFE's Diplomate Forensic Engineer (DFE) certification program is accredited by the CESB in the Professional Engineering Program category.

Since its establishment in 1982, NAFE has published the NAFE Journal, a compilation of 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 continues to act on the recommendations provided through an extensive 2019 membership audit with the assistance of Mark Levin, B.A.I., Incorporated. NAFE will continue to focus on policies and services in the following areas:

- New Member Recruitment
- Intake/On boarding of New Members
- Member Engagement
- Retention
- Marketing/Branding
- Administration
- Website coordination

Recent accomplishments of National Academy of Forensic Engineers include the following:

- A new Board of Directors was confirmed at the January 2023 meeting with Steve Pietropaolo, MS, P.E., CFEI, DFE being confirmed as 2024 president.
- Membership in NAFE is back to pre-pandemic numbers with 443 active members and more than 20 membership applications in review. Michael Aitken has been named Admissions Chair and is working with his committee to interview and approve applicants.
- In Summer 2023, NAFE embarked on a strategic planning process to define our vision for the future and develop a roadmap to get there, to assure we are best serving our membership. The attendees of a 2-day workshop reaffirmed NAFE's mission statement and drafted strategic planning pillars. Those pillars were then refined and a draft framework was approved for member review at the January 19th board meeting
- NAFE has engaged a new Executive Director, Amanda Hendley of Association Catalyst, LLC. NAFE embarked on and concluded an executive director search via a committee chaired by Past President Liberty Janson and President Elect Steve Pietropaolo.
- We saw our highest conference attendance since before COVID at our Winter Conference in Daytona, Beach on January 19-21, 2024. The success of this conference is due to the hard work of many people including the Technical Review Committee led by Bart Kemper and Ellen Parson, the Education Committee led by Zohaib Alvi, Conference Coordinator Dan Couture, Monika Schulz, and Carla Graham.
- We presented our President's Distinguished Service Award to Mr. Bruce Wiers, PE, CFI, DFE. This award recognizes a NAFE member for their exceptional, sustained, and on-going

volunteer contributions to the Academy. Bruce has served the Academy for more than a decade in various roles including CPD Chair, Treasurer and Board member.

For more information about NAFE membership, conferences, publications, or other information, please visit www.nafe.org.

Please contact me with any questions.

Steve Pietropaolo, MS, P.E., CFEI, DFE
2024 President
National Academy of Forensic Engineers
president@nafe.org

National Council of Structural Engineers Associations

Mission

NCSEA advances the practice of structural engineering by representing and strengthening its member organizations.

Vision

The National Council of Structural Engineers Associations will be recognized as the leading advocate for the practice of structural engineering.

NCSEA is the parent organization and coordinating council for 44 state structural engineering associations. The activities of these member organizations are coordinated and represented by NCSEA in activities such as building code development and simplification, continuing education, licensure, participation in the structural engineering emergency response program, and promotion of the structural engineering profession to students as well as the public-at-large.

NCSEA continues to actively:

- Provide practicing engineers access to the development and revision process for codes and standards.
- Advocate positive changes in the building code development process.
- Convey accurate information to the public relative to structural engineering-related events.
- Educate elected official about the importance of structural engineers in order to gain their support of legislation for SE Licensure, Good Samaritan Acts, mandatory peer review and QBS.
- Educate the media to encourage them to seek structural engineers for commentary on issues that pertain to structural engineering.
- Educate other design professionals about the role, value, and importance of structural engineers.
- Develop publications to assist engineers with difficult or poorly understood areas of practice.
- Advocate for structural engineering degree programs.
- Provide meaningful, practical, and convenient continuing education opportunities at reasonable prices.
- Provide national support for pursuing structural engineer licensure on a state-by-state basis.
- Pursue improvement in the level of competence and standard of practice of the structural engineering profession throughout the United States.
- Work toward establishing a national Structural Engineering Emergency Response (SEER) network.
- Publish STRUCTURE, the leading monthly publication for, by and about structural engineers and their practice.
- Participate in ASCE's Professional Activities Committee to develop common goals for structural engineers.
- Participate in the development of revisions to the International Building Code (IBC), International Residential Code (IRC) and International Existing Building Code (IEBC).

- Provide online review/refresher courses, specifically designed for the NCEES Structural Engineering (SE) examination.

NCSEA Licensure Committee

The committee remains committed to tracking the latest licensure activities, setting meaningful goals, and empowering states to adopt consistent licensure laws that improve mobility. Currently there are 25 states with some form of structural licensure distinction and several others that have an active SE licensure effort. The committee has set goals to understand the unique conditions and stakeholders in each state and to help others recognize the collective importance of holding structural engineers to a higher standard of practice.

NCSEA held a national Summit in Anaheim in November of 2023. At this conference the SE Committee convened to provide updates and exchange ideas about the current state of SE licensure. The committee session fostered many meaningful discussions about current licensure activities. Among the issues discussed was the transition to Computer Based Testing. NCSEA has been working with NCEES to understand how the transition will affect structural engineering licensure. Several members of NCSEA are directly involved with NCEES and are knowledgeable about the transition which helps the committee stay updated with the latest developments.

Other issues discussed at The Summit included:

- Committee successes in 2023.
- Structural Licensure trends in various states.
- Licensure presentations that could benefit diverse audiences.

Momentum from the Summit is helping to shape our priorities for 2023. Since the committee continues to have deep knowledge in issues that relate to structural licensure, we endeavor to share the objectives of structural licensure with all stakeholders, including outside organizations. Although our primary goal is to continue helping states who are pursuing Structural Licensure, several other goals have been established for the coming year. These goals include:

- Developing outreach videos for young engineers who plan to become licensed.
- Developing outreach videos for senior engineers who want to learn more about licensure. trends.
- Developing content for a webinar that conveys the importance of structural licensure.
- Monitoring and assessing the initial results from CBT tests.
- Reaching out to a few state boards to educate them regarding trends in other states.
- Educating Member Organizations about the latest licensure developments.

The next Summit will be in Las Vegas, Nevada. The committee continues to work on meaningful articles that provide insightful points for anyone who wants to become a persuasive voice in their community. We will visit Member Organizations that are not pursuing SE Licensure to discuss efforts moving forward and hope to pick up some new members along the way.

NSPE® NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

REPORT TO THE NCEES PARTICIPATING ORGANIZATIONS LIAISON COMMITTEE

MARCH 2024

NSPE.ORG

In 2023, the field of engineering encountered a dynamic landscape characterized by a blend of challenges and opportunities. NSPE and its members navigated legislative and regulatory complexities while simultaneously addressing the rapid emergence of transformative technologies. And throughout it all, NSPE's vision remained unchanged:

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

In 2023, NSPE continued to focus on four key areas of its strategic plan: champion, guide, advance, and unite. These pillars served as the foundation for NSPE's planning and activities, shaping its efforts both in the short term and for long-term initiatives.

CHAMPION (protecting the PE License)

NSPE's highest priority is safeguarding the PE license, with threats to licensure taking various forms. As the nation faces talent shortages in specialized fields, states are reevaluating professional and occupational licensure to ease entry into the workforce. This trend is reflected in legislative actions such as deregulation, universal licensure proposals, review committees, and board consolidation efforts. These shifts not only challenge the integrity and standards of the engineering profession but also pose risks to public safety and welfare.

In response, NSPE continued to advocate vigorously for the preservation and strengthening of licensure requirements. Through proactive engagement with policymakers and industry stakeholders, NSPE worked to highlight the critical importance of maintaining rigorous standards for licensure to ensure the competence and accountability of engineering professionals. By amplifying the voice of the profession and advocating for policies that prioritize public safety, NSPE remains at the forefront of efforts to uphold the integrity of the engineering profession and protect the welfare of the public.

Ongoing Threats

Legislation aimed at expanding universal licensure or addressing perceived anti-competitiveness from professional and occupational licenses continued to surface in state legislatures across the nation, presenting a multifaceted challenge. These initiatives, stemming from concerns regarding consumer choice, the right to earn a living, and various other issues, took on diverse forms, reflecting the complexity of the regulatory landscape. Moreover, emerging issues such as the formation of licensing review committees, the evaluation of board structures and proposed consolidation and criminal conviction legislation introduced new dimensions to the debate.

Similarly, efforts to enhance license mobility for military spouses persisted as a prominent issue. The underlying principle of this legislation aimed to facilitate the reciprocal licensing process for licensed military spouses relocating to a different state due to family transfers. Notably, the enactment of the Veterans Auto and Education Improvement Act of 2022 (Public Law 117-333) by President Biden at the onset of 2023 underscored the federal commitment to improving the portability of professional licenses for members of the Uniformed Services and their spouses.

New Threats

In 2023, we saw an uptick in threats to licensure take the form of legislation focused on licensing review committees, board composition and consolidation and an emerging threat from the previous year, criminal convictions.

Legislation dealing with the formation of “licensing review committees” continues to become more commonplace. These committees are established to assess and evaluate existing licensure processes, regulations, and requirements within specific professions or industries. While on the surface, these committees may appear prudent, there is a potential for unintended consequences.

In an effort to streamline processes and reduce barriers to entry, licensing review committees may recommend deregulation or relaxation of licensure requirements based on their findings, a situation that highlights inherent risks. In addition to eroding the autonomy of the licensing boards tasked with establishing and maintaining standards, this encompasses the risk of reducing standards or deregulating professions. Such actions could jeopardize public safety and welfare by permitting underqualified

individuals to enter the workforce without proper oversight.

These risks are compounded when licensing review committees lack adequate representation from all relevant stakeholders, including practitioners, consumers, and regulatory authorities. Committees that fail to incorporate diverse perspectives are likely to overlook critical factors and make recommendations that do not fully consider the interests of all parties involved.

Furthermore, committees lacking sufficient oversight or independence may be susceptible to external influences, leading to agendas and decisions that prioritize economic interests over public safety and welfare. Inadequate incorporation of checks and balances, a common deficiency in many licensing review committees, can compromise the integrity of the licensure process. This undermines the fundamental purpose of licensure regulations, which is to ensure competence and accountability within regulated professions or industries in order to protect the health, safety, and welfare of the public.

The issue of licensing "board composition and consolidation" presents a significant risk to professional licensure. It carries the potential for several adverse outcomes, including the dilution of expertise and representation of specific professions within a board. This could result in regulatory decisions that do not fully consider the unique needs and challenges of each profession. Additionally, there's a risk of a loss of autonomy for individual professions, which may lead to the implementation of one-size-fits-all regulations that fail to address profession-specific nuances adequately. Moreover, such changes may contribute to a reduction in accountability and transparency in regulatory processes, undermining the ability of stakeholders to hold regulatory bodies accountable for their actions. These are just a few of the concerns associated with licensing board composition and consolidation.

"Criminal Conviction" legislation has arisen in several states, focusing on three key issues. Firstly, there is a push to clarify when a criminal conviction triggers disciplinary action. Secondly, efforts are being made to prevent licensing boards from solely revoking or suspending professional licenses based on convictions unrelated to specific professional responsibilities. Lastly, discussions are underway regarding the circumstances under which a criminal conviction can justify the denial of a license. The primary concern is that criminal convictions often do not directly correlate with the provision of engineering services. However, convictions such as bribery may indicate a

willingness to compromise the engineer's duty to safeguard public health, safety, and welfare.

GUIDE (PEs in Emerging Technologies)

The rapid advancement of technology has ushered in a new era where managing and safeguarding public health, safety, and welfare from emerging technologies such as artificial intelligence (AI) and Open-Source Software Security has become increasingly challenging. While there's been extensive discourse on the capabilities and potential benefits of these innovations, many critical questions remain unanswered. NSPE firmly believes that the public's best interests are served when licensed professional engineers are at the forefront, overseeing the design, development, and deployment of these technologies to address uncertainties effectively.

NSPE acknowledges the transformative impact of AI on society and is dedicated to promoting the responsible development and deployment of trustworthy AI systems. As a leading organization of engineers committed to upholding the highest ethical standards and ensuring public welfare, NSPE asserts that individuals involved in designing, developing, or overseeing AI systems with a direct impact on public safety should adhere to the same rigorous standards as professional engineering licensure. By upholding ethical principles, prioritizing safety, and advocating for transparency and accountability, Professional Engineers play a pivotal role in harnessing the benefits of AI while mitigating its potential risks to society.

In parallel, the widespread adoption of open-source software across diverse industries underscores the growing imperative to ensure its security. In 2023, recognizing this urgency, the White House Office of the National Cyber Director launched the Open-Source Software Security Initiative (OS3I) and initiated a Request for Information to address this pressing need. This interagency collaboration aims to identify policy solutions and allocate government resources to bolster open-source software security. NSPE has been actively engaged in this initiative, providing valuable insights and recommendations to support its objectives. Through ongoing collaboration and proactive measures, NSPE endeavors to make significant contributions to the enhancement of open-source software security, safeguarding critical infrastructure and systems from emerging cyber threats.

ADVANCE (Strengthening the License)

NSPE remains committed to strengthening the PE license. In 2023, NSPE reinforced this commitment by taking a leading role in advocating for the bipartisan and bicameral Freedom to Invest in Tomorrow's Workforce Act (H.R. 1477 / S. 722), which aims to reshape career development and workforce preparedness in the U.S., particularly within STEM and other specialized fields.

NSPE's advocacy for the Freedom to Invest in Tomorrow's Workforce Act is focused on enhancing the accessibility and affordability of education and career development opportunities. This proposed legislation seeks to expand the utilization of 529 savings plans to cover a wider array of purposes, including postsecondary skills training, credentialing programs, and non-governmental certifications. By supporting this Act, NSPE is actively working to address critical workforce shortages and associated challenges. Further, NSPE's active support for this Act aligns seamlessly with its commitment to nurturing a diverse and inclusive engineering community.

While the Freedom to Invest in Tomorrow's Workforce Act has yet to become law, its substantial bipartisan backing offers promise, particularly in today's polarizing environment. NSPE's endorsement of the Act represents significant strides in fortifying the engineering profession, elevating practice standards, and creating opportunities for future generations of professional engineers. This dedication, fueled by the expertise and enthusiasm of its members, ensures the integrity of the engineering profession while addressing critical workforce challenges.

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. NSPE also continues to collaborate with state societies and affiliates to promote licensure, and to fight against potentially dangerous threats.

National Society of Professional Surveyors

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International Collaboration

NSPS hosted the FIG Working Week 2023, held in Orlando, May 28-June 1, at the Signia by Hilton Orlando Bonnet Creek/Waldorf Astoria Orlando.For the first time in 21 years, (the FIG 2002 Congress in Washington DC), the FIG annual conference was held in the Americas with 1084 participants representing 85 countries. During the working week, over 350 presentations covering all areas of the surveying and geospatial profession were given. As an added bonus, beginning with a Plenary Session presentation by NGS Director Juliana Blackwell, the National Geodetic Survey hosted NGS DAY, a full day's worth of presentations on Wednesday.

Education Issues

NSPS maintains a listing of schools throughout that country that provide degree programs in Land Surveying and Geomatics. We are also constantly monitoring these programs to provide support, where needed, to encourage the continuation of the program where threaten by budget cost.

NSPS continues its annual Student Competition for surveying-related programs. For 2023, 24 teams from 14 states competed in activities that consisted of a monument scavenger hunt throughout the District of Columbia and field exercises in the National Mall under the Washington Monument using antique field equipment.

Our Certified Survey Technician (CST) program continues to be one of the most successful certification programs we offer. This is a four-level testing program NSPS offers to Technicians, with either on field path or an office path. NSPS continues to see CST growth in a Post-COVID world with the profession having more emphasis on the need for trained technicians.

Licensing Issues

Deregulation – The Government affairs committee of NSPS continues to monitor and evaluate threats to the licensed professional surveyor by states across the nation. Arguments for deregulation include barrier to entry of the profession, funding of state licensing boards, and low numbers of licensed surveyors to provide service to the public. Most efforts to eliminate are rooted in cost-cutting measures, so NSPS is providing assistance to state surveying affiliates in promoting the duty of the professional surveyor as a protector of public interests. NSPS respectfully urges members of Congress to sponsor a "sense of the Congress" resolution highlighting the important role licensing of surveyors, architects, and engineers play in protecting the public health, safety, and welfare.

Promotions

ASCA Conference - NSPS attended the American School Counselors Association conference, our 8th year, held in Atlanta, GA. This year's event also featured a collborative effort with NCEES and their new "Be a Surveyor.com" materials and handouts. We received many compliments on out booth space and the quality of the material we were handing out, which included "Getting Kids into Surveying" posters, information on Trig-Star and CST programs, as well as related stickers, coloring sheets and associated bling for the conference attendees.

Outreach

Scouting Jamboree - The Jamboree was held at the Summit Bechtel Reserve in West Virginia on July 19-28, 2023. The NSPS Scout committee had frisbees, wooden nickels and stickers made with the NSPS logo along with a really nice design. These were given to the scouts that completed the BSA surveying merit badge. Challenge coins with the same designs were presented to most scouts that completed the surveying merit badge and each of counselors received. This Jamboree, we had 226 scouts that successfully completed the surveying merit badge.

Geodesy Crisis - NSPS continues its quarterly meetings with the National Geodetic Survey (NGS) for discussions on collaboration and information on common interests, such as the 2022 datum change and how state legislation will need to be revised in some states to indicate compliance with the 2022 datum.

Structural Engineering Institute (SEI)

SEI Annual Report to the
NCEES PARTICIPATING ORGANIZATIONS
LIAISON COUNCIL (POLC) MEETING
Saturday, March 23, 2024

Presented by Chun C Lau, P.E., S.E., F.SEI, F. ASCE
Chair – SEI SE Licensure Committee

The mission of the Structural Engineering Institute (SEI) is to improve every aspect of the structural engineering profession. We are 30,000 members strong, and our broad mission is fulfilled through the activities and projects developed by the SEI committees and chapters. More than 100 SEI committees and 50 local SEI Chapters and Grad Student Chapters support the SEI mission.

The mission of an SEI committee is to identify and accomplish projects and activities consistent with its stated purpose to improve the quality of structural engineering services, improve the quality of structural engineering practice, and advance the standing of structural engineers in society. Integral with these efforts, SEI committees are critical in identifying new developments or needs within the profession that should be considered or addressed by SEI.

SEI is undergoing reorganization in 2023. SEI Board of Governors approved the general reorganization structure presented by the Reorganization Task Committees on May 6, 2023.

On October 17, 2023, the revised SEI Bylaws were approved by the ASCE Board of Direction, and this was an important milestone to advance the vision to achieve the new SEI strategic board structure and the evolution of the committee structure to communities from divisions. Along with the Bylaws updates that officially outlines the new board and committee structure into the Technical and Professional Communities, the new reorganization also includes identification and acceleration of Focused Initiatives, and the creation of an Advisory Council.

SEI Leaders gather to launch the SEI reorganization on November 2 at ASCE Headquarters in Reston, Va., nearly 60 members of SEI leaders from the SEI Board of Governors, new SEI Community Executive Committees, SEI Advisory Council, and Focused Initiative Chairs gathered to launch the implementation phase of the SEI Reorganization effort. The SEI Board of Governors collected more than 250 comments from the meeting and will use them to bolster the implementation and advancement of the strategic efforts.

SEI SE Licensure committee

The SEI SE Licensure Committee seeks to further the mission of SEI relating to licensing, regulatory issues, and professional development activities for individual structural engineers. The committee met in person at the SEI Structures Congress in May 2023 and had a productive meeting. The committee also made a presentation at one of the sessions at the Congress on the topic of the NCEES PE Structural Exam transition to Computer-Based-Testing (CBT) for the upcoming April 2024 launch of the exam. The PE Structural Exam will be transitioned from 16 hours – 2 days paper and pencil exam into 4 CBT sessions – Vertical Breadth and Depth Sessions and, Lateral Breadth and Depth Sessions. SEI SE Licensure Committee is continuing our outreach effort to inform our membership regarding the transition of the PE Structural to CBT.

SEI supported the addition of Structural Engineering Licensure Coalition (SELC) to POLC and SELC membership to POLC was approved at the 2023 NCEES Annual Conference in Boston, MA. Three of our SEI SE Licensure Committee members actively participating in the Structural Engineering Licensure Coalition (SELC) which consists of SEI along with the National Council of Structural Engineers Associations (NCSEA), the Coalition of American Structural Engineers (CASE). SELC developed a consensus document that defines "Significant Structures." Several jurisdictions require that "Significant Structures" be designed by licensed structural engineers. While this definition varies from jurisdiction to jurisdiction, there are many similarities between the various definitions. Current effort is underway to review the definitions defined in the Significant Structure document, so that other jurisdictions that may be considering adopting similar legislation will have an updated, well-reasoned and widely accepted definition to use as a starting point.

SEI continues to support the Structural Engineering Caucus that was held at the 2023 NCEES Annual meeting at the Westin Hotel in Boston, California. It was well attended with 48 attendees with 18 NCEES Member Boards represented. SEI President, Don Scott, presented the SELC Vision for the Future of Structural Engineering Licensure. Also presented at the caucus is the PE licensure roadmaps regarding Education, Experience and Exam (3E) and it is quite complex path for licensure from Member Board to Member Board. There was much discussion on the differences between Member Boards on Structural Licensure. We will continue our effort in working toward a common Structural Engineer Licensure model for comity from State to State.

Our members continue to work on the NCEES SE Examination Committee on converting the "pencil and paper" exam to a CBT exam that can be administered completely on a 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. We will continue our support for standard setting (cut score) of the Breadth portions of

the PE Structural CBT exam to be held in May 2024 after the first administration of the exam by recruiting subject matter experts from our membership for such an important task.

One of our goals this year is to continue helping our young engineers better understand structural licensure, especially with the new CBT format.

Structural Engineering Licensure Coalition

SELC Annual Report to the
NCEES PARTICIPATING ORGANIZATIONS
LIAISON COUNCIL (POLC) MEETING
Saturday, March 23, 2024
Alexandria, Virgina

Carl H. Josephson, P.E., S.E.
February 29, 2024

In 2012, the Council of American Structural Engineers (CASE), National Council of Structural Engineers Associations (NCSEA), the Structural Engineering Institute of the American Society of Civil Engineers (SEI), and the Structural Engineering Certification Board (SECB) formed the Structural Engineering Licensure Coalition (SELC). The goal of SELC is to provide a united voice for the structural engineering profession for the promotion of structural engineering licensure, working toward implementation of structural engineering licensure in all jurisdictions. With the dissolution of SECB in 2022, SELC continues with the active support of CASE (now the Coalition of American Structural Engineers), SEI, and NCSEA.

Structural Engineering Licensure Coalition:

- Recognizes that certain significant structures can present extraordinary hazards to the safety, health, and welfare of the public if they are not properly designed and detailed.
- Acknowledges that the public needs a means of recognizing and differentiating those professional engineers who possess sufficient education and experience to design these significant structures properly.
- Advocates the creation of a common post-PE structural engineering license.
- Supports a transition clause for PEs who are qualified and currently practicing structural engineering.

In 2019, SELC published a document entitled “Significant Structures Model Recommendations” which is intended to be a model of the categories of structures which should be designed under the responsible charge of a Licensed Structural Engineer. These are structures that represent a substantial hazard to human life in the event of structural failure, that are designated as essential facilities, or that need to be engineered using advanced levels of analysis. This document is intended primarily for licensing boards that are considering licensing Structural Engineers or are considering a change in their licensing rules or laws. The document has a side-by-side commentary that explains the rationale behind the categories of structures chosen.

In 2020, SELC produced a white paper entitled “A Vision for the Future of Structural Engineering Licensure.” The paper was the culmination of several years of research, discussion, collaboration, and consensus from all the member organizations. The paper discussed the history of structural engineering

licensing and the structural examinations, compares SE licensing to other professions, discusses the licensing models of other countries, and looks toward the future.

This past year SELC began an update of the "Significant Structures Model Recommendations." The updated model will clean up language in the document, reflect current thinking in the industry, and reflect changes in the technical references that make up the building code and help to define these "significant structures." Once that document has been revised, the intention is to revisit and update the "Vision for the Future…" document.

At the NCEES annual meeting in Boston in 2023, SELC moderated the Structural Engineering Caucus which is a venue for the discussion of issues related to structural engineering licensing. Topics of particular interest this past year included the transition from a paper-and-pencil exam to computer-based testing (CBT), an overview of the "Vision for the Future of Structural Engineering Licensure" paper, a discussion about the varied and complex paths to structural engineering licensure between jurisdictions, and the beginning of a discussion about overlapping and incidental practice. The Structural Engineering Caucus is organized such that when attendees sign up for the NCEES annual meeting they can request that certain topics or questions be discussed at the Caucus.

SELC meets six times each year, two of those meeting in person. Anyone who would like more information on the Structural Engineering Licensure Coalition can contact the current Chair: Carl Josephson at cjosephson@jwa-se.com.

Society for Mining, Metallurgy and Exploration Inc.

2023 Report to the Participating Liaison Council; National Council for Examining Engineers and Surveyors

Introduction

This report is submitted to the Participating Liaison Council (POLC) and the National Council for Examining Engineers and Surveyors (NCEES) for 2023 Professional Engineering activities of the Society for Mining, Metallurgy and Exploration Inc. (SME).

SME is the premier worldwide engineering society representing earth science professionals with membership over 13,600. Our core disciplines include geology, mining engineering, mineral process engineering, environmental engineering, and underground civil construction are the foundation of the Mining Mineral Processing Professional Engineers Exam (MMP). SME has members in most countries of the world.

Mission

SME serves the mining, resources, and underground construction communities for a sustainable future. This mission embraces the engineering design, construction and operations activities of the Professionals of SME at mines, plants, and support functions for the mineral industries.

Vision

SME's vision is building a better world through mining, metallurgy, and underground construction. SME has 2,500+ members who are licensed PE's. SME regards the PE as the gold standard for the holder's ability to design and build.

- Industry Innovation: SME is the venue of first choice for disseminating research leading to innovation and encouraging its applications in mining and underground construction.
- Industry Workforce: Mining, metallurgy, exploration, and underground construction are careers of choice.
- Responsible Mining & Underground Construction: The worldwide mineral industry recognizes SME as the premier resource for information on responsible mining and underground construction.
- Association Growth: SME Leads in amalgamating the community to build a better world.

Support of the Professional Engineers Program

SME supported the PE program in 2023 in many ways. The SME PE Committee is writing the SME PE Study Guide Edition 9 with an updated practice exam. SME has published the Study Guide every 7 years beginning in the 1980's to help PE candidates prepare for the MMP exam. The committee consists of 34 members. The SME PE Committee developed a presentation that is used to promote the value of licensure. SME Committee members gave the presentation to various groups in 2023.

As per the January 2020 agreement between SME and NCEES, SME supplies regular updates to the Mining Reference Handbook (MRH), the SME publication that constitutes the single reference utilized in

the MMP exam. Updates were submitted in 2023. SME is the supplier of volunteer engineers for populating the NCEES MMP Committee who specifically develops the MMP PE exam.

SME sponsors a yearly 5-day PE Review Course given by five university Professors. The course occurred September 2023 with 23 attendees. Short Course attendees for 2023 constituted 68% of first time PE test-takers. For 14 years, 70% of first time test-takers attended the Review Course.

NCEES administered the MMP exam on October 2023. This was the third computerized MMP PE exam. Forty-three engineers took the 2023 exam, 34 for the first time and 9 repeat test takers. The overall passing rate was 67%. The 5-year average passing rate including 2023 is 58%. The average passing rate since 1990 is 57%.

An idea was brought forth from the SME membership. The idea being adding “mentoring” in the PE model rules as a satisfactory relationship for the required 4-years of engineering experience to obtain licensure. Most states use the word “under” or “supervised by” for an engineer-in -training regarding the relationship of a PE who signs off on the experience. The mentoring idea is motivated because an engineer-in-training at a mine sometimes has difficulty having a PE as a supervisor or someone in the company to sign off on experience. Other industries and disciplines have the same problem. The idea was reviewed positively by the SME PE Committee and SME management. SME presently has a mentoring program for young professionals. Because the difficult logistics involved on having each of the 69 licensing boards in the US and Territories considering mentoring individually, the request was made to NCEES to evaluate the idea for possible addition to the model law/rules for licensing. The model law/rules is not a requirement for the 69 boards but does have wide following for guidelines. The idea was advanced to NCEES for consideration by appropriate NCEES committees.

The SME Professional Engineer Committee genesis was in 1978. The initial charge was to bring the Mining / Mineral Processing PE Exam (MMP) from a state level to a national level. SME accomplished this charge by engaging NCEES for exam administration and by having the MMP exam recognized by 25 states through reciprocity. Milestones and major changes in the past 45 years have been:

1978	SME PE Committee formed.
1980	First MMP exam administered by NCEES, exam graded by SME PE’s, Questions written by SME PE’s.
1980-2001	Pad and pencil exam consists of both multiple-choice questions and essay questions, written and graded by SME PE Committee. Open-book exam.
2002-2020	Pad and pencil exam consists of 80 multiple-choice questions; questions written by SME PE Committee; exam graded by NCEES. Open-book exam.
2021-present	Computerized exam consists of 85 multiple choice and alternative-form questions.

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March 2024 POLC Report

The Society of Naval Architects and Marine Engineers was organized in 1893, to advance the art, science, and practice of naval architecture, shipbuilding, and marine engineering.

In its earliest days, SNAME was incorporated and nurtured by the titans of our industry including William H. Webb, George E. Weed, Rear Admiral George W. Melville. Other men of stature took the helm, thereafter, including Edwin A. Stevens, David W. Taylor, Vice Admiral Land, Kenneth M Davidson, and Blakely Smith. SNAME technical information has long been the gold standard. SNAME publications are widely used as textbooks and reference materials at major universities.

The mission of the Society is to advance the art, science and practice of naval architecture, marine engineering, ocean engineering and other marine-related professions through:

- the global exchange of knowledge and ideas
- being a provider of and catalyst for professional education across the maritime industry
- encouraging and sponsoring research and development

SNAME Technical & Research Program

SNAME encourages and sponsors maritime research into areas of the ocean sciences by means of the Technical and Research (T&R) Program, with particular emphasis on marine vehicles and offshore structures. The T&R Program consists of ten T&R Committees, each dedicated to a general area of research. A total of 74 T&R Panels currently serve as subcommittees of each T&R Committee, providing more focused research into defined areas.

An overall Steering Committee oversees the work of the T&R Committees and Panels. Its members represent all segments of the maritime industry and cooperating academic and governmental agencies. The Steering Committee is responsible for the detailed planning and execution of the Technical and Research program.

The Steering Committee establishes research priorities, projects anticipated needs in future technology, and develops research programs designed to meet future needs. The Committee monitors fund raising in support of all technical and research activities and the fiscal and contractual administration of such funds. The Committee authorizes T&R Committees and their

panels to form joint committee with the American Society of Naval Engineers and other NA/ME/OE technical associations.

The ten active T&R Committees are:

- Environmental Engineering
- Hull Structure
- Hydrodynamics
- Marine Forensics
- Offshore
- Operations, Safety, and Economics
- Ship Design
- Ship Production
- Ships' Machinery
- Small Craft

Over the past two years, SNAME T&R panels produced T&R Bulletin 1-45: Guide for CFD-Informed AUV Maneuvering Models (2022), T&R Bulletin 5-07: Guideline for the Site-Specific Assessment (SSA) of Offshore Wind Farm Jack-ups (2022, update coming in 2024), and T&R Bulletin 4-16: Recommended Practices for Ship Heating, Ventilation & Air Conditioning Design Calculations.

PE Review Course

To support those naval architects and marine engineers who are preparing to take the Professional Engineer Examination in Naval Architecture and Marine Engineering, the Society developed a Distance Learning course that provides a review of the 21 Subject Areas included in the NAME Examination Specification. The Subject Area subject matter has been structured into distinct Subject Units.

The Subject Units are as follows:

- Hydrostatics
- Hydrodynamics/Regulatory Requirement
- Loads on Vessels and Ocean Structure
- Ship Structures and Connections
- HVAC, Fuel and Environmental Issues
- Main and Auxiliary Systems
- Piping Systems Design
- Shipboard Electrical Systems
- Marine Materials
- Hull and Accommodation Outfit

The course is structured over a ten-week period from July-September. This leaves several weeks for the students to complete their preparations before the PE Exam. The 2023 course included the PE Course Study Guide as well as a copy of the PE NAME reference guide.

Registration for the 2023 PERC course opened at the end of April. A total of 49 registrants enrolled in the course, the highest number to date. The 2024 registration will open this Spring – registrants will be instructed to download the latest copy of the PE NAME Reference Guide directly from the NCEES site.

ABET Program Evaluators

ABET is a nonprofit organization that accredits college and university programs in applied and natural science, computing, engineering, and engineering technology. ABET is made up of 36 professional societies, and programs accredited by ABET to meet the requirements established by these societies. In other words, graduates of ABET accredited programs are ready to go to work in their respective professions.

As one of the contributing societies, a SNAME representative is on the ABET Board of Directors and SNAME provides Program Evaluators for college and university programs that in Naval Architecture, Marine Engineering, Ocean Engineering, Naval Engineering, and Marine Engineering Technology. All members of the commissions are volunteers who have been appointed by their societies to be on the commissions. As such, we have 2 commissioners on the Engineering Accreditation Commission (EAC) and 1 commissioner on the Engineering Technical Accreditation Commission (EATC).

The Program Evaluators (PEVs) are the backbone of ABET. Under the direction of a commission member, these individuals visit colleges and universities to review the programs. Most years, SNAME is tasked to provide PEVs for 8 to 12 programs.

Scholarships

SNAME offers between 12-16 merit-based, named scholarships annually (4 undergraduate, 11 graduate, 1 SNAME selection.) In the 2023/2024 academic year, SNAME awarded a total of $127,000 to 15 students – 10 graduate scholarships, 5 undergraduate scholarships in NA/ME/OE in the United States and abroad. The amount varies per year based on the quality of the student applications.

SNAME Maritime Convention (SMC)

SNAME supports the next generation of NA/ME/OE by inviting students to the SMC, providing them with reduced registration fees and engaging them in a variety of engineering activities. Each year there is a large student presence (20-25%). Students are encouraged to participate in networking opportunities, an industry round table, student competitions (Lisnyk, Student Design Competition, student papers), and a job fair connecting them to industry leaders.

PDH credits are also provided during SMC for pre-conference courses. There are 2-4 pre-courses held each year.