

architects' practice into engineering, is inappropriate because laws are difficult to change if they are incorrect.

ASPE seeks support for plumbing option for mechanical engineering exam

David Dexter, PE, attended Tuesday's meeting to ask the State Board of Registration to support a plumbing option for the NCEES Mechanical Principles and Practice of Engineering examination. Dexter said the American Society of Plumbing Engineers (ASPE) is not attempting to develop a stand-alone discipline for "plumbing engineering" within NCEES or any state's registration board. Rather, he said, ASPE would like to establish "a verifiable measure of competency for the discipline of plumbing" and enhance the "protection of the health, safety and welfare of the public at large." ASPE estimates that the proposed exam would attract 50-150 first-time test takers once it is offered. On Tuesday, State Board of Registration Chairperson Dean Ringle, PE, PS, said that the Board would not oppose a plumbing option. The State Board of Registration plans to send a letter to NCEES in support of Dexter's request.



David Dexter, PE,
CPD, F.NSPE,
F.ASPE

In December, the Ohio Society of Professional Engineers Board of Directors voted to support the plumbing option on the mechanical exam. In addition to being a member of ASPE, Dexter is a past president of the Ohio Society of Professional Engineers.

State Board of Registration will look into adding "person in responsible charge" to each firm under License Look-up

PLSO Executive Director Melinda Gilpin requested that the State Board of Registration suggest to the State of Ohio a modification for the Ohio eLicense Center (i.e., the License Look-up feature on the Board's website). Gilpin suggested that it would be useful if the records for the registered firms appearing on the site would include the person(s) in responsible charge of engineering and/or surveying. State Board of Registration Assistant Executive Director Amanda Uwague said that the State of Ohio is in the process of moving professional licensing activities to a new online licensure system.

New Assistant Attorney General to begin work with State Board of Registration

Ohio Assistant Attorney General Rachel Huston has taken a new position. Her replacement, Christie Limbert, will be in place by the State Board of Registration's next meeting in February.

PE exam applications

- The State Board of Registration took no action on an NCEES PE exam applicant who is claiming experience under the supervision of consultants. State Board of Registration members expressed concern Tuesday because the applicant, who has a bachelor's degree in construction engineering technology from the University of Toledo, does not have direct supervision for experience he is claiming at a timber-framing firm. Previously, at its July meeting, the State Board of Registration determined that the application was incomplete because the applicant's work was

January 17, 2017

State Board of Registration for Professional Engineers and Surveyors
77 S High Street
Suite 2472
Columbus, OH 43215

Dear Sirs:

RE: Plumbing Option for the Mechanical Engineering Principles and Practices Examination

The American Society of Plumbing Engineers (ASPE), through its Working Group, is seeking the placement of a plumbing option within the framework of the Mechanical Engineering Principles and Practices examination (MEPP) as developed by the National Council of Examiners for Engineering and Surveying (NCEES) and administered by the various State Boards.

In considering this initiative for the State of Ohio, the Board has asked some questions of relevance therein. The questions, with ASPE's responses, are provided below.

- How many potential test-takers does ASPE expect to take the plumbing option if developed?
 - That is a difficult question to answer with any certainty. Plumbing is a subset of Mechanical Engineering, in that it deals with fluid flows and heat transfer, but in forms that can be highly specialized within the nature of plumbing systems.
 - Based on NCEES' most recent report on PE pass rates, the 24 available exams cover the broad topics of the "Big Four": Mechanical, Electrical, Civil, and Chemical Engineering.
 - First-time takers run from a high of 2,152 (Civil: Structural) to a low of 16 (Software Engineering).
 - Looking specifically at Mechanical Engineering, there are currently 3 subset exams: HVAC and Refrigeration (982), Mechanical Systems and Materials (866), and Thermal and Fluids Systems (1,022).
 - Fire Protection is a stand-alone exam with 147 first-time takers.
 - We estimate that plumbing should attract 50 to 150 first-time takers once it is developed and placed into the NCEES exam process.
- Are there any EAC/ABET-accredited engineering programs that offer plumbing engineering as a degree option or specialization? If so, how many?
 - There are currently no EAC/ABET-accredited programs dedicated to plumbing, but the same is true for the HVAC option within the Mechanical PP Exam.
 - The University of Wisconsin-Madison does have technical electives in plumbing within their Civil Engineering program.
 - Once ASPE has enough State Boards willing to support an option within the Mechanical Engineering PP Exam, our efforts will turn to expanding the offering of technical electives related to plumbing within numerous colleges and universities.

- Does ASPE have any data on the number of college graduates who are currently pursuing degrees that specialize in plumbing engineering?
 - EAC/ABET-accredited degrees are focused on the underlying science, physics, and critical thinking of engineering.
 - The application of that EAC/ABET-accredited degree does not generally occur until a degreed engineer joins the workforce. It is once that the degreed engineer begins to apply their basic knowledge, under the responsible charge of a Registered Engineer, that they move into a specialty such as plumbing or HVAC.
 - As stated above, ASPE is working towards the inclusion of plumbing electives within engineering programs.
 - However, in our experience, such options do not educate or train an engineer in the application of engineering principles specific to a design specialty (plumbing, HVAC, electrical systems, etc.). Consider: I took HVAC options while earning my degree. While they did give me additional classes in fluid flow and heat transfer, they did not educate me on HVAC system design.
 - It is also our experience that while adequate means exists of verifying the competency of candidates who are practicing within (for example) HVAC and Fire Protection, no such means exists for verifying the competence of those individuals who are practicing within the discipline of plumbing.
- What unique knowledge and skills that are important for safeguarding the public health, safety, and welfare are not covered in the Mechanical PE exam?
 - If one uses the standard definition of "plumbing" as the apparatus (as piping and fixtures) concerned in the distribution of water in a building and the transportation of sanitary and waste fluids, unique knowledge and skills encompass a simple understanding of code. Note that the underlying principle of codes and/or technical documents comes from the engineering principles that are the foundation of any engineering discipline.
 - However, the design of plumbing systems, beyond the standard definition, requires a deep understanding of the interaction of such systems within the environment into which they are being applied. The more technical plumbing systems require greater knowledge and skills, such as medical gas, water distribution on a macro scale, an understanding of water processes, etc.
 - Consider the City of Flint, MI, in which appropriate evaluation of the impact of switching water systems was neither understood nor considered. Changing the pH of the water allowed lead to be stripped from the existing piping and enter the drinking water of the consumer. This has and will continue to have a negative impact on the public's health, safety, and welfare (which is the paramount, and underlying, concern that ASPE is attempting to address).
 - Legionella continues to have an adverse impact on the public's health, safety, and welfare. Initially this was thought to be associated with HVAC cooling towers, and in some cases continues to be. However, a Legionella bacterium is a naturally occurring condition in all water. The lack of understanding as to how to adequately monitor and control such bacterium within the water will continue to have a negative impact on the public's health, safety, and welfare. This is another issue in which plumbing engineers play an important role in minimizing or eliminating public health problems.

- A 19-year-old Kansas resident is now a student at the Kansas School for the Blind following a medical gas accident during a 2009 dental procedure. Allegedly, oxygen and nitrous oxide lines were crossed during the design and construction of the dental office in question. It is also alleged that the city, during inspections of the office, should have caught the problem. The 19-year-old is now legally blind, walks with difficulty (requiring the use of a cane) and has suffered some hearing loss.
- The level of knowledge needed for modern and complex water and sanitary systems continues to increase. This continued growth in complexity will continue to mandate a need for specialized knowledge that differs from engineers who specialize in environmental conditioning.
- No engineer, professional or degreed individual, can be knowledgeable of everything. That is why Professional Engineers focus on their core competencies—those to which they can show specific demonstrated and documented knowledge before their peers.

In addition, the Society would like to establish the following points for consideration:

- Note that what ASPE is proposing: placing plumbing as an **OPTION** under the MEPP examination as developed by the NCEES and administered by the various State Boards. There is **NO** attempt being made to develop "Plumbing Engineering" as a stand-alone discipline within the NCEES or any State Board.
- It is **NOT** in ASPE's interests to restrict the practice of any Registered Engineer or place any undue hardship on any engineering concern. As we understand it, that as a PE, one should be able to practice within any area that is within one's area of expertise and in which one can demonstrate competency therein. That competency is verified when one's peers are in agreement that the person has demonstrated sufficient knowledge in the product/work they produce. Under ASPE's proposal, this will **NOT** change. Current PEs who can meet this criterion **WILL** continue to be able to place their seal/signature on plumbing documents.
- The ultimate goal of the Society's initiative is the establishment of a verifiable measure of competency for the discipline of plumbing and the continued, no...**enhanced**, protection of the health, safety, and welfare of the public at large. As Registered Professional Engineers, we should not be expected to do any less?

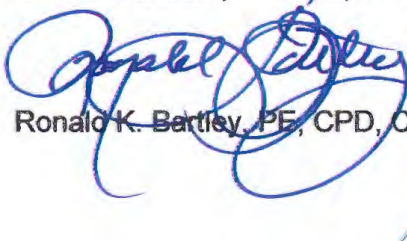
Therefore, we respectfully request the Board's support of our proposal and that the Board inform NCEES of said support.

On behalf of the Society, the Working Group, and the membership; thank you for the opportunity to address the Board.

Sincerely yours,



David D. Dexter, F.NSPE, F.ASPE, CPD, LEED AP BD+C, CPI/CPE



Ronald K. Bartley, PE, CPD, CPI/CPE