

**NSPE Licensure and Qualifications for Practice Committee
Recommendation for NSPE Board of Directors Action
Winter Meeting – Miami Beach, FL
January 7, 2012**

NSPE Action Plan Goal #4 (Advocate public policy pertaining to engineering matters in the interest of enhancing public health, safety, and welfare.)

Recommendation #2: Adopt the position statement presented herein strongly recommending and advocating licensure of engineering research and development principal investigators.

Background of Recommendation: Engineering research and development (R&D) projects often fall within the definition of the practice of engineering, and R&D projects in and of themselves, or in their subsequent application, often have potential impact on public health, safety and welfare. And yet researchers are not commonly required by agencies, universities, companies and engineering licensure jurisdictions to be licensed professional engineers. The proposed position statement encourages multi-disciplined R&D teams, while advocating inclusion on the team of a licensed professional engineer as a Principal Investigator in each engineering discipline involved.

Actual Recommendation for Board Action:

[NSPE Position Statement No.](#)
[Licensure of Engineering Research and Development \(R&D\) Principal Investigators](#)
[November 16, 2011](#)

Position Statement

[The National Society of Professional Engineers \(NSPE\) strongly recommends and advocates the inclusion of a Principal Investigator\(s\) \(PI\) who is a licensed professional engineer on all Federal and State \(or other jurisdiction\) research and development \(R&D\) contract/grants that involve the practice of engineering, including applied research and development associated with public health, safety, and welfare. Execution of basic research is not within the scope of this position statement as basic research is generally intended to enhance the knowledge in science, not engineering; for a brief description of R&D categories, please see below.](#)

R&D Category Description*

Basic Research. Basic research is directed toward enhancing the knowledge in science. It is a systematic, scientific study directed toward developing a greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications, processes, or products in mind. It is farsighted high payoff research that provides the basis for technological progress. Basic research may lead to subsequent applied research and advanced technology developments, and new and improved functional capabilities.

Applied Research. Applied engineering research is a systematic study to understand the means to meet a specific, recognized need. It's an expansion and application of knowledge to develop useful materials, devices, systems, processes, techniques, or methods. It may be oriented, ultimately, toward the design, development, and improvement of prototypes and new processes to meet the requirements. Applied research may translate promising basic research into solutions for broadly defined needs, short of system development. This type of effort may vary from systematic mission-directed research beyond basic research to sophisticated prototype hardware, study, programming and planning efforts that establish the initial feasibility and practicality of proposed solutions to technological challenges. It includes studies, investigations, and non-system specific technology efforts. The dominant characteristic of applied research is that it is directed toward developing and evaluating the feasibility and practicality of proposed solutions and determining their parameters.

Development. Development is the systematic use of scientific and technical knowledge in the design, development, testing, or evaluation of a potential new product or service (or an improvement in an existing product or service) to meet specific performance requirements or objectives. It includes the functions of design engineering, prototyping, and engineering testing.

Basis

The National Council of Examiners for Engineering and Surveying (NCEES), which is an organization with representatives from autonomous regulatory licensing boards, has developed a *Model Law* to provide standards in the development and subsequent modification of legislation to regulate the practice of engineering by these boards. The NCEES Model Law is developed and periodically updated by NCEES with the intent to provide sound, realistic guidance to the jurisdictions that regulate the practice of engineering to safeguard public health, safety, and welfare. The primary purpose of this guidance is that the jurisdictions will have a reference document to provide greater uniformity of qualifications for licensure, to raise these qualifications to a higher level of accomplishment, and to simplify the interstate licensure of engineers.

The term "practice of engineering," as used in the Model Law, is defined to mean any service or creative work, the adequate performance of which requires engineering education, training, and experience in the application of mathematical, physical, and engineering sciences (for example, as required for investigation, expert technical testimony, evaluation, planning, design and design coordination of engineering works and systems, planning the use of land, air, and water, teaching of advanced engineering subjects, performing engineering surveys and studies, and the review and/or management of construction for the purpose of monitoring and/or ensuring compliance with drawings and specifications). These may embrace such services or work, either public or private, in connection with utilities, structures, buildings, machines, equipment, processes, work systems, projects, communication systems, transportation systems, and industrial or consumer products or equipment of control systems, communications, mechanical, electrical, hydraulic, pneumatic, chemical, environmental, or thermal nature, if they involve safeguarding public health, safety, and welfare, and other professional services necessary to the planning, progress, and completion of any engineering services.

Execution of many engineering R&D contracts/grants associated with public health, safety, and welfare involves "service or creative work, the adequate performance of which requires engineering education, training, and experience in the application of special knowledge of the mathematical, physical, and engineering sciences to such services or creative work as investigation, expert technical testimony, evaluation," and hence, would fit the definition of

“practice of engineering” under the Model Law. Thus, requiring a P.E. license to execute such contracts/grants would be appropriate; the decision regarding whether a P.E. license is required to execute a given contract/grant should be left to the funding agency that prepares the requests for proposals (RFP) or the statements of work (SOW) as the agency is in the best position to determine whether the contract/grant involves the practice of engineering or the practice of science. It is intended by NSPE that the licensure requirement apply in the event that either the R&D project itself or the subsequent use of the results of the R&D project has a potential impact on public health, safety and welfare. Ultimately, P.E. Boards in each jurisdiction make determinations as to what constitutes the practice of engineering as defined, and what does not.

NSPE encourages the formation of multidisciplinary teams of engineers, scientists and others, where appropriate to the specific R&D project. NSPE’s advocacy applies to the inclusion of a PI in each applicable engineering discipline who is licensed in the jurisdictions where the engineering services are provided.

The licensure of PIs will enhance protection of the public health, safety and welfare; provide an incentive to R&D engineers to become licensed; and offer the much needed leverage to advocates of this requirement (for example, NSPE and State Societies).

Action Plan

The proposed approach focuses on Federal R&D contracts/grants initially, and then extending it to State (or other jurisdiction) R&D contracts/grants at the discretion of individual jurisdictions. Specific steps are outlined below.

Step 1. Upon approval, it is recommended that NSPE take the initiative to advocate that funding agencies clearly stipulate that the applied research and development contract/grant recipient team shall include a PI in each applicable engineering discipline who is licensed in the jurisdictions where the engineering services are provided, if the work performed involves the “practice of engineering,” including applied research and development associated with public health, safety, and welfare, as defined in the NCEES Model Law.

Step 2. All such RFPs or SOWs should request a statement of qualifications that would reflect the requirement of the PIs possessing the P.E. license in the jurisdictions where they would be providing the engineering services. NSPE members should monitor such RFPs or SOWs and NSPE should provide input to Federal agencies in instances where these requirements are not included.

Step 3. Repeat Steps 1 and 2 with appropriate modifications for implementation of the recommendation associated with State (or other jurisdiction) contracts/grants.

*The description of basic and applied research presented herein is a synthesis of various sources including the Federal Acquisition Regulations (FAR), Department of Defense (DOD) and the National Science Foundation (NSF).

Estimated Impact on Budget for 2011-2012 Year. None

NSPE Licensure and Qualifications for Practice Committee Members:

Craig N. Musselman, P.E., F.NSPE, Chair
Jon D. Nelson, P.E., Vice Chair

Engineering Faculty Subcommittee:

Edmund P. Segner Jr., Ph.D., P.E., Chair
Kirankumar V. Topudurti, Ph.D., P.E., BCEE, F.NSPE, Co-Chair
Monte L. Phillips, Ph.D., P.E., F.NSPE, Co-Chair
Bernard R. Berson, P.E., L.S., F.NSPE
Howard N. Blitman, P.E., F.NSPE
L.G. "Skip" Lewis, P.E., F.NSPE

Committee Members:

J. Steven Almon, P.E., CFM, F.NSPE
David W. Carlysle, P.E.
Josephine L. Emerick, P.E., F.NSPE
Jeffrey H. Greenfield, Ph.D., P.E., F.NSPE
Andrew S. Haimes, P.E., F.NSPE
Scott S. Haraburda, Ph.D., P.E.
Thomas "Dudley" Hixson, P.E., F.NSPE
David A. Janover, P.E., F.NSPE
James D. Lesikar, II, Ph.D., P.E., F.NSPE
James T. McCarter, P.E., F.NSPE
Thomas E. Mulinazzi, P.E.
Lawrence J. O'Connor, P.E., L.S., F.NSPE
John F. Ourada, P.E., F.NSPE
Peter Pisasale, P.E.

Bobby E. Price, Ph.D., P.E., F.NSPE
Louis A. Raimondi, P.E., L.S.
Teresa Helmlinger Ratcliff, Ph.D., P.E., F.NSPE
Paul D. Schmidt, P.E., F.NSPE
L. "Larry" Robert Smith, P.E., F.NSPE
Paul K. Taormina, P.E.
Stuart G. Walesh, P.E., F.NSPE
Thomas H. Walker, P.E.
V. Alan Werner, P.E., F.NSPE
William F. Fendley, P.E., F.NSPE (Observer)
Raul Pena, III, P.E., F.NSPE (BOD Liaison)

Arthur E. Schwartz, CAE, JD
Staff Liaison - NSPE L&QP Committee