



WHO IS PERMITTED TO DESIGN AND LAYOUT FIRE PROTECTION SYSTEMS IN THE COMMONWEALTH OF PENNSYLVANIA?

Questions are often asked regarding who is permitted to design and/or layout fire protection systems, such as fire sprinkler, fire alarm and detection and special hazard systems such as clean agents, CO₂, Halon, water mist, dry chemical, wet chemical, including systems protecting commercial cooking operations. Often the question is whether or not a NICET certified technician is permitted to undertake “design” work.

According to the provisions of the **International Fire Code (IFC)** and the **Uniform Construction Code (UCC)**, a fire protection system is: “*Approved devices, equipment and systems or combinations of systems used to detect a fire, activate an alarm, extinguish or control a fire, control or manage smoke and products of a fire or any combination thereof.*”

This issue of who can “design” has been specifically addressed by the Engineering Department of the National Fire Sprinkler Association in pamphlet: “**F.Y.I Who Designs Fire Sprinkler Systems**”. This publication states: “ The basic design of a fire sprinkler system takes place through specifications or preliminary plans. This function is app carried out by a licensed professional engineer or architect in compliance with state requirements.”

The same publication also addresses how the licensed design professional would carry out this “design” responsibility. The publication states: “ Usually either by designation of the appropriate design standard or through a statement of independent system design criteria. It is not necessary that drawings be prepared, but only that an engineering judgment take place.... If the project engineer or architect designates, "This area to be protected with a sprinkler system meeting the requirements of NFPA 13D", or "Light hazard sprinkler system to be provided in conformance with NFPA 13," the basic design decisions have been made. Sprinkler systems are "pre-engineered" at the level of the National Fire Protection Association's Committee on Automatic Sprinklers, and reference to the design standards issued by that Committee are both common and appropriate.



The Society of Fire Protection Engineers (SFPE), National Society of Professional Engineers (NSPE) and National Institute for Certification of Engineering Technologies (NICET) jointly produced a “white paper” entitled in 2008 entitled: **NSPE Position Statement No. 1749—SFPE/NSPE/NICET Joint Position on the Engineer and the Engineering Technician Designing Fire Protection Systems.**

The Executive Summary of that report states:

The Society of Fire Protection Engineers (SFPE) is credited with the original development of this document. The SFPE has agreed to team with the National Society of Professional Engineers (NSPE) and the National Institute for Certification of Engineering Technologies (NICET) to develop a unified position statement regarding the reasonable and prudent roles and responsibilities of Licensed Professional Engineers and Certified Engineering Technicians when designing fire protection systems for installation in the United States.

SFPE, NSPE and NICET recognize that defining fire protection system design and layout in terms of the roles and responsibilities of engineers and engineering technicians is a sensitive undertaking. Each has capabilities and responsibilities that contribute to the relationships in a design project. Moreover, SFPE, NSPE and NICET recognize that fire protection systems – including fire detection, alarm and suppression systems play an important role in protecting the health, safety, and welfare of the public.

Legally, the practice of engineering is a responsibility that cannot be delegated to non-licensed engineers (individuals). The role of the engineering technician is to understand the engineer’s design intent and help implement that design. This position statement describes the critical relationships from the perspective of the engineering community. Engineers or engineering technicians overstep their respective roles if they participate in aspects of design for which they are not qualified by education and/or experience. This position statement explains the relative roles of those in the field of fire protection, who contribute to public safety, including Licensed Professional Engineers and Certified Engineering Technicians.



The Pennsylvania “Engineer, Land Surveyor, and Geologist Registration Law” sets forth very specific definitions as to what activities constitute the practice of “engineering” as follows:

“Practice of Engineering” shall mean the application of the mathematical and physical sciences for the design of public or private buildings, structures, machines, equipment, processes, works or engineering systems, and the consultation, investigation, evaluation, engineering surveys, construction management, planning and inspection in connection therewith, the performance of the foregoing acts and services being prohibited to persons who are not licensed under this act as professional engineers unless exempt under other provisions of this act.

The term **“Practice of Engineering”** shall also mean and include related acts and services that may be performed by other qualified persons, including but not limited to, municipal planning, incidental landscape architecture, teaching, construction, maintenance and research but licensure under this act to engage in or perform any such related acts and services shall not be required.

The foregoing shall not be deemed to include the practice of architecture as such, for which separate registration is required under the provisions of the act of July 12, 1919 (P.L.933, No.369), entitled “An act to regulate the practice of architecture in the Commonwealth of Pennsylvania by providing for the examination and registration of architects by a State Board of Examiners; defining the power and duties of said board of examiners; and providing penalties for the violation of this act,” **excepting only architectural work incidental to the ‘practice of engineering.’** “

The design of fire protection systems is also addressed by the provisions of the **Uniform Construction Code (UCC)**. UCC § 403.43. (k) Grant, denial and effect of permits states: “ A licensed architect or professional engineer shall first review submittal documents and place a notation on the documents that the architect or engineer reviewed the documents and that the documents are in general conformance with the design of the building or structure. “ When the work is limited to just a fire protection system, UCC § 403.42 a(c) requires that all drawings must bear the seal of a registered design professional.



In either circumstance (deferred submittal or limited work), a generally accepted alternative to placing the seal of the registered design professional on the drawings is for the registered design professional to issue a letter stating that the drawings and specifications have been reviewed and have been found to meet the design criteria for the building or structure. Such letter must bear the seal of the registered design professional.

The role of the NICET technician is very clearly defined by the NICET organization. With regard to water-based fire protection systems the organization states:

This certification program is for engineering technicians engaged in the layout and detailing of water-based fire protection systems that must meet code and statutory requirements. Areas covered include plan and submittal preparation, applications of various types of water-based systems, equipment selection and application, and technical management of layout projects. Technical areas covered include types of water-based systems and their components; water supply requirements; hydraulics; building features, hazards, and occupancy considerations; system installation, inspection, and maintenance requirements; applicable codes and standards; and contract administration.

For fire alarm systems NICET states:

This certification program was designed for engineering technicians working in the fire alarm industry who engage in a combination of the following fire alarm systems activities: system layout (plan preparation), system equipment selection, system installation, system acceptance testing, system trouble-shooting, system servicing, and system technical sales. Technical areas covered include applicable codes and standards, types of detectors and signaling systems, supervision requirements, power requirements, building/space structure and occupancy considerations, and basic electricity and electronics.

It is important to note that in describing the certification programs, that “design” is not included in the delineated responsibilities of the NICET technician. A NICET technician is not permitted under any circumstances to perform “design” work,



regardless of the level of certification, unless that person is also a registered design professional (engineer or architect).

The limitation that a NICET technician is not permitted to engage in “design” is also reflected in the NICET policy regarding the use of seals or stamps. The official policy states: “NICET does not authorize seals or stamps for Technicians. Documents prepared in accordance with approved design standards may bear the signature, date, NICET certification title and number of the Technician taking responsibility for the work. The use of any seal or stamp conveying the NICET name or mark on engineering documents or drawings prepared or checked by a NICET certificant is not authorized.”

In summary, the “design” of any fire protection system is the sole responsibility of the project’s registered design professional (architect or engineer). The NICET technician is permitted to undertake layout work including the preparation of drawings. It is also important to remember that the NICET technician is prohibited from using any type of seal or stamp that conveys the appearance of the seal of a registered design professional.

The individual preparing drawings and specifications for submittal for review and approval must also be aware of the requirements contained in the various NFPA codes and standards along with the IFC regarding the information that must, at a minimum, be included with the submittal.

REFERENCES:

- NICET website www.nicet.org
- SFPE White Paper <http://tinyurl.com/nmya75e>
- PA Engineering and Architectural Registration Laws
- UCC
- IFC
- Pennsylvania Engineer, Land Surveyor, Geologist Registration Law <http://tinyurl.com/lppbgc4>

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