

# Development of a Profession

*The role of education and certification in occupational safety becoming a profession*

By Lon H. Ferguson and James D. Ramsay

IT HAS BEEN ALMOST 40 YEARS since the passage of the OSH Act, yet, parents, students and the general public often still wonder exactly what the SH&E profession is or does. Conventional wisdom often claims safety to be “common sense.” Safety and security are the very bases of Maslow’s hierarchy of needs, and most parents have told their kids to “be safe.” However, what does it mean to be safe at the worksite?

Although the practice of safety has been around for generations, it seems to be a profession that high school or college students do not quickly recognize. Anecdotally, it is apparent that more-established professions, such as medicine or law, do not seem to suffer this same sort of identity crisis. People generally know what physicians and attorneys do.

Adding to the image issues surrounding the profession is the failure to develop a universally or legally accepted definition of *safety professional*. Developing and defending a professional title has typically been the purview of the professional association(s) representing the practice, and this simply has

not happened for safety for various reasons. It is difficult to define the safety profession because it is a broad discipline with various specialties that work in many different job settings and organizational levels. In addition, professional associations may be reluctant to promulgate a definition of *safety professional* for fear of alienating some of their dues-paying members. Therefore, definitions that do exist tend to be general and focus simply on hazard recognition, evaluation and control.

Each of these observations combine to suggest that safety is still struggling to define what it is and to clarify its professional identity. This article suggests a way to address this identity crisis. Specifically, the authors discuss the roles that education and certification might play in helping SH&E achieve professional maturity and the recognition it seeks as a profession.

## What Is a Profession?

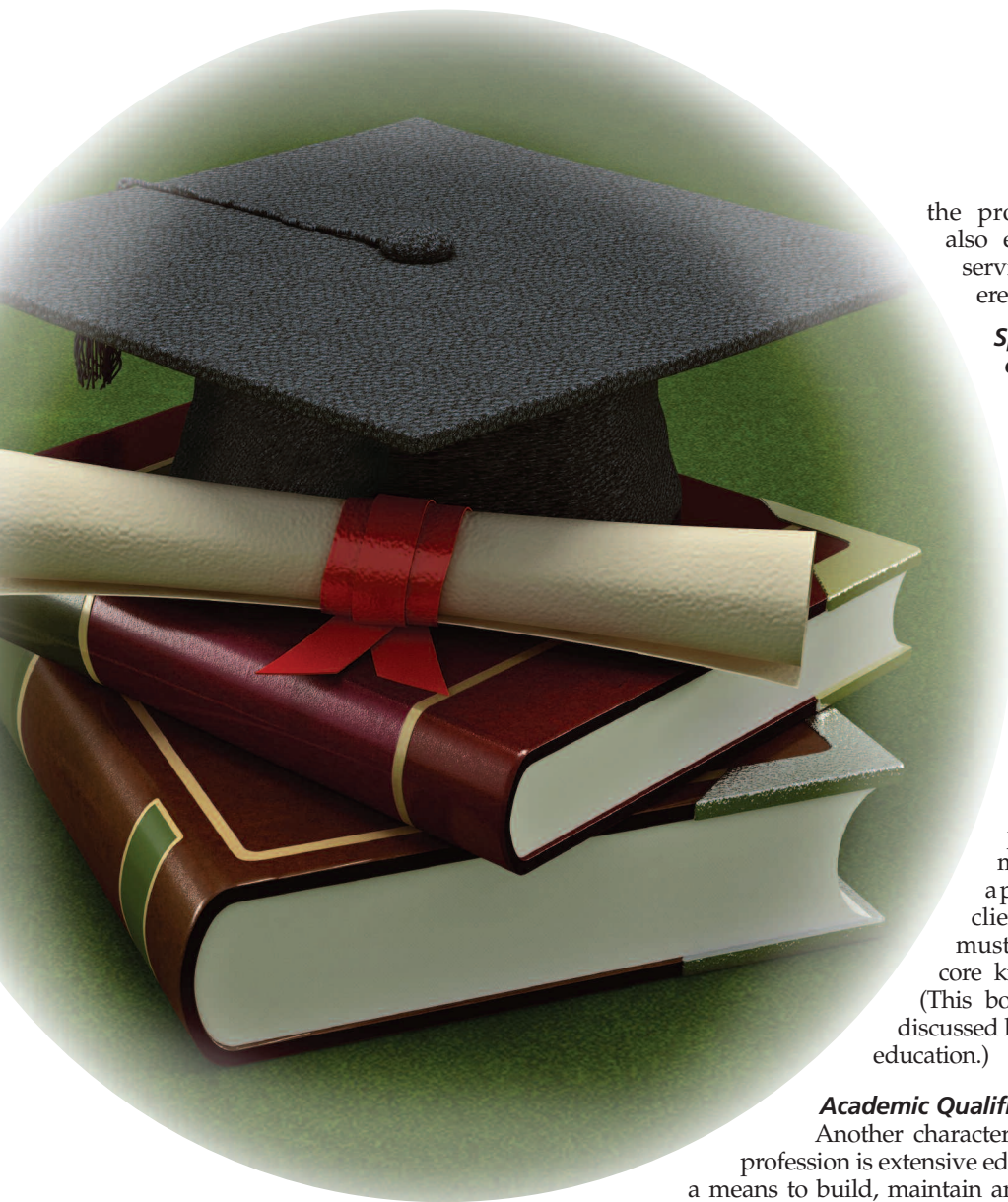
Is safety a profession or an occupation? Whereas *occupation* might be defined as the principle activity one engages in to earn money; a profession is an occupation requiring specialized knowledge or skill. Starr (1984) states that “quite aside from specialized knowledge, professionals possess an advantage in judgment” (p. 5). One can look up the definition of a lawyer, a physician or an engineer and find commonalities shared by each, that is, specialized knowledge applied in the practice of the profession.

To call oneself a profession, one must work in a recognized profession. But, how does one distinguish between an occupation and a profession? All professions seem to have a life cycle. New discovery, knowledge or newly codified sets of operating procedures based on new technology (e.g., X-ray technician) can each act as an impetus for the formation of a new profession. Professions begin, develop, grow and mature.

If an incipient profession grows and matures, it is recognizable as a distinct profession by those in the

**Lon H. Ferguson, Ed.D., CSP**, is a professor and current chair of the safety sciences department at Indiana University of Pennsylvania (IUP). Ferguson holds a B.S. and M.S. in Safety Sciences from IUP and a doctorate from the University of Pittsburgh. Prior to joining IUP, Ferguson was an assistant professor at Millersville University and worked as a safety consultant for Liberty Mutual Insurance and the PA/OSHA Consultation Program. He is a BCSP director, a member of ASSE’s Educational Standards Committee and a professional member of ASSE’s Western Pennsylvania Chapter. In 2002, he received ASSE’s William E. Tarrants Safety Educator of the Year Award.

**James D. Ramsay, Ph.D., CSP**, is a professor and coordinator of the homeland security program at Embry-Riddle Aeronautical University. During his career, he has been a faculty member at the University of Wisconsin-Stevens Point and at IUP. Ramsay is chair of ASSE’s Educational Standards Committee, an ABET board member and accreditation coordinator for the Homeland Security Defense Education Consortium Association. He is a charter member of ASSE’s Academics Practice Specialty, which named him its Safety Professional of the Year in 2003. In 2008, Ramsay received the William E. Tarrants Outstanding Safety Educator Award. He is a professional member of ASSE’s Cape Canaveral Chapter.



field as well as by those who hire them. Over time, professions either persist or fade away. To understand what a profession may or may not be, or how it becomes recognized as a sovereign discipline, let's investigate the characteristics that mature disciplines or professions demonstrate.

### **Common Characteristics of a Profession**

Dean (1995) suggests the following characteristics are consistent with well-developed professions: a service orientation and a code of professional ethics; a specialized body of knowledge; a distinct educational tract that derives from the specialized body of knowledge and associated educational credentials; continuous learning and professional development; and a social or collegial dimension.

### **Service Orientation & Code of Ethics**

Most recognized professions provide a valuable service to society and operate with little or no self-interest. This service orientation requires practice within the guidelines of an ethical code. The code is a written statement that excludes unacceptable behavior. It becomes a set of behavioral standards used by the professional in ethically difficult situations and helps maintain the service orientation of

the profession. This code also ensures that a high service quality is delivered to the public.

### **Specialized Body of Knowledge**

As noted, a profession is built upon specialized knowledge and skills. Professionals develop special skills and knowledge through education and training in order to serve clients effectively. Professionals are in a position, given this knowledge and skill, to use their judgment to determine the appropriate approach for their clients. The profession must clearly define this core knowledge and skills. (This body of knowledge is discussed later within the role of education.)

### **Academic Qualifications/Education**

Another characteristic of a recognized profession is extensive education that provides a means to build, maintain and expand standards related to practice and ethics. Educators transmit knowledge, skills, values and professional behavior. As the base of theory and knowledge increases, the area of study becomes an undergraduate major and later a graduate-level program. The prestige and status of the profession and its knowledge base are enhanced through educational standards. A common characteristic of the education component in mature professions, such as medicine or law, is an extensive internship, clinical or some other culminating off-campus experience. Such experiences allow students to apply the specialized body of knowledge and skills in a real-world setting under the supervision of more experienced professionals.

### **Continuous Learning**

After basic academic preparation is completed, individual professionals pursue the renewal of skills and knowledge through continuing education via classes, seminars, additional formal education and the study of professional literature. It is assumed that more can be learned and developed, and that the profession is always expanding.

Professionals contribute to this expansion through their own study, practice and research made available to the field through publication, presentation

**Abstract:** *Some 40 years after the OSH Act was passed, many still do not know what the SH&E profession is or does. What's more, there is no clear, universally accepted definition of safety professional. To address this apparent identity crisis, the authors discuss the roles education and certification might play in helping SH&E achieve professional maturity and the recognition it seeks as a profession.*



Academic qualifications provided in an educational setting are a common characteristic of recognized professions.

and other communication. This characteristic also includes developing the scientific basis for a profession, which in turn enables the profession to continuously improve and thereby better meet professional and practice challenges.

#### **Socialization/Collegiality**

Professional socialization involves the building of a group identity or a collegial consciousness. Often, this is initiated through the education process that provides a means to socialize emerging professionals. These emerging professionals become members of a group through identification with a profession's values, practices and personal identity.

In addition, the profession may develop licensure, certification or other membership validation that confirm the professional identity. This may include individual states recognizing admittance to the profession by validating the membership, and by enforcing laws restricting illegal practice by nonprofessionals (e.g., the P.E. license for engineers) (Dean, 1995).

#### **Recognition of a Profession**

Given the distinction between an occupation and a profession, how does an occupation become recognized as a profession? This recognition is sometimes referred to as *professionalization*. It is a social process that involves several steps:

- 1) Establish a set of widely acceptable professional qualifications. Professional qualifications are usually observed by the existence of an accrediting organization, and a set of educational outcomes applied to all students in accredited curricula. The students must demonstrate some level of competence in these outcomes prior to graduation.

- 2) Establish barriers to entry (occupational closure). That is, establishing a metric(s) that can discern the qualified from the unqualified.

- 3) Establish professional associations. One role of professional associations is socialization/collegiality, a common characteristic of a profession. However, these associations also help establish and regulate continuing education in order to ensure that practicing professionals continuously improve skills and knowledge. Associations also typically develop and lobby for specific policy and or legislation that affect the practice of the profession, the credentialing of its members or the education of its students.

- 4) Establishing and enforcing a professional code of ethics, another common characteristic of a profession (Starr, 1984).

The field of occupational safety clearly demonstrates some of these characteristics. For example, the field has a professional code of ethics; active and mature professional associations (e.g., ASSE, AIHA) support the field; and there are accredited credentials (e.g., CSP, CIH). In addition, peer-reviewed journals (e.g., *Professional Safety*, *Journal of Safety Research*) are published about the field; the field has professional conferences and seminars (e.g., ASSE's annual conference); and it even has established and accessible program-level accreditation outcomes and recognized accrediting organizations (e.g., ABET).

However, perhaps at least two reasons illustrate how SH&E has failed to ascend to and become widely recognized as a mature profession. First, the practice of occupational safety has failed to establish, require and implement acceptable qualifications and certifications prior to practicing the occupation. In turn, this has led to little or no demarcation between the qualified and the unqualified. Recall that the purpose of occupational closure is to create a barrier to entry since the profession becomes closed to entry from outsiders, amateurs and the unqualified.

In other words, using medicine as an example, one cannot simply graduate from college, not attend medical school, then call oneself a physician. Such a person would not have obtained the necessary academic education (i.e., successfully graduating from an accredited medical school and completing an accredited residency) or the requisite professional certification (i.e., becoming board-certified).

Second, SH&E has not fully ascended to a mature profession because some in the field have seemingly avoided the need to possess acceptable qualifications (e.g., education and certifications) in order to perform the work of an SH&E professional. For example, there is a tendency to transform existing employees into "the safety guy" without subsequent education, training, proper preexisting academic and educational credentials, or any professional certification. The authors submit that those individuals could create a tremendous risk not only for employees but also for the companies they serve. Society would not deem it an acceptable risk to have untrained individuals performing surgery, so why would it be acceptable to have an untrained individual decide when it was safe for an employee to enter a confined space?

Furthermore, the facts that most SH&E academic programs are not accredited and that many employers require neither specific educational credentials nor professional certifications combine to complicate the ability to identify the qualified from the unqualified in practice.

Collectively, the SH&E profession should consider several areas in order to be considered a profession. For example, it is critical to develop a set of widely accepted academic qualifications required in order to practice. Once such qualifications are developed, the profession must find a way to police itself as well as implement a mechanism to separate the qualified from the unqualified. To investigate further how the practice of occupational safety might progress and obtain the status of profession, let's first consider academic qualifications (i.e., education) and the role of professional certifications.

#### **Role of Education**

Academic qualifications provided in an educational setting are a common characteristic of recognized professions. Formal education bestows specialized knowledge and skills through coursework and other educational experiences. For example, internships are a common part of the educational

experience and provide hands-on application of the basic knowledge and skills in a real-world setting.

As noted, the profession must clearly define the core knowledge and skills unique to it—the outcomes all graduates of a professional program must possess. This has been done in part by ASSE's Educational Standards Committee, which has identified specific outcomes for safety curriculum. These outcomes have been adopted by the Accreditation Board of Engineering and Technology (ABET) as part of the Applied Science Accreditation Commission (ASAC) for use in accreditation evaluations of safety programs.

The specific program outcomes identified by ASSE (2004) include that graduates possess the ability to:

- 1) anticipate, recognize, evaluate and develop control strategies for hazardous conditions and work practices;
- 2) demonstrate the application of business and risk management concepts;
- 3) demonstrate an understanding of the fundamental aspects of safety, industrial hygiene, environmental science, fire science, hazardous materials, emergency management, ergonomics and/or human factors;
- 4) design and evaluate SH&E programs;
- 5) apply adult learning theory to safety training methodology;
- 6) identify and apply applicable standards, regulations and codes;
- 7) conduct accident investigations and analyses;
- 8) apply principles of safety and health in a nonacademic setting through an internship, cooperative or supervised experience.

This is by no means an exhaustive list of outcomes that one might expect to find in the practice of safety at the worksite. This is especially true today due to the convergence of SH&E practice, which requires broad responsibilities in related fields such as ergonomics and risk management. However, these outcomes provide a framework for the basic knowledge and skills that graduates of a bachelor's program should be expected to possess.

Further, BCSP (2008) defines the knowledge and skills of the safety profession in a content delineation study. The primary purpose of the study was to validate current professional practice as well as the content contained in the safety fundamentals examination, the first examination leading to the CSP designation, administered by BCSP. Such information would be beneficial to an undergraduate degree program in SH&E because it represents the content of entry-level professional safety practice.

The study was completed in three phases. The first phase involved developing and validating the knowledge needed to engage in effective professional safety practice at the entry level. The second phase involved validating the information from the first phase using a survey process completed by a representative sample of safety professionals. The last phase of the study was the actual development of the examination blueprint and examination specification

from the ratings obtained from the survey responses acquired in the second phase. The sidebar on p. 28 lists the specific domains and topic areas developed for safety professionals according to BCSP.

It is important to note that this BCSP study identified specific knowledge areas for most of the topics identified within each of the four domains. Strong similarities exist between ASSE's Educational Standards Committee safety program outcomes criteria and the BCSP domains. The first program outcome involved the recognition, evaluation and control of hazardous conditions and work practices, which is directly linked to the first two BCSP domains. The second program outcome, which addresses the application of business and risk management concepts, is directly linked to domain 4. Program outcomes 4 and 5, which address the development and implementation of SH&E programs and the application of adult learning theory in safety training, is directly linked to domain 3.

Such links between educational program outcomes and competencies (knowledge and skills) for entry-level professionals must be established for two reasons. First, it helps identify the specialized body of knowledge. Second, it gives educators the ability to compare course content to the identified outcomes, knowledge and skills in order to determine whether the curriculum is providing adequate coverage for effective safety practice (Brauer, 2005).

This may be one reason BCSP (2010b) created the graduate safety professional (GSP) designation for students who graduate from qualified academic programs (QAP). BCSP defines a QAP as a bachelor's or master's degree program that has program accreditation as a safety or similarly named program by ABET's ASAC. GSP is not a certification; rather, it is another path to the CSP. Specifically, GSPs receive a waiver of the safety fundamentals examination but must still take the comprehensive practice examination once they meet the experience credit requirements established by BCSP.

### **Professional Degree Integrity**

If education is the key mechanism that bestows a specific set of professional skills and knowledge, exactly how might one distinguish the "good" academic programs from the "not good" programs? Today, since few (if any) policing bodies regulate continuing professional development in SH&E, it is relatively easy to develop and market academic coursework or even spurious credentials.

The idea that anyone can develop and market a safety program endangers the degree integrity of the entire profession. Council for Higher Education Accreditation (CHEA, 2009) refers to such dubious providers of education as "degree or diploma mills." After all, although it is possible to have an academic program claim to be a safety program even if its faculty are not credentialed or experienced themselves, and there is no external oversight as to the outcomes taught in the program, such is not likely (or even legal) in medicine, law, nutrition, nursing or engi-

# Content Domains for BCSP Safety Fundamentals Exam

## Domain 1: Recognizing, SH&E Hazards

- Topic 1: Biological Hazards
- Topic 2: Chemical Hazards
- Topic 3: Electrical Hazards
- Topic 4: Natural Hazards
- Topic 5: Radiation Hazards
- Topic 6: Structural and Mechanical Hazards
- Topic 7: Hazards Related to Fires and Explosions
- Topic 8: Hazards Related to Human Factors and Ergonomics

## Domain 2: Measuring, Evaluating & Controlling SH&E Hazards

- Topic 1: Measurement and Monitoring
- Topic 2: Engineering Controls
- Topic 3: Administrative Controls
- Topic 4: PPE

## Domain 3: SH&E Training & Management

- Topic 1: Training and Communication Methods
- Topic 2: Management Processes
- Topic 3: Inspections and Auditing
- Topic 4: Group Dynamics
- Topic 5: Project Management
- Topic 6: Risk Management
- Topic 7: SH&E Management Systems

## Domain 4: Business Principles, Practices & Metrics in SH&E Practice

- Topic 1: Basic Financial Principles
- Topic 2: Probability and Statistics
- Topic 3: Performance Metrics and Indicators

*Note. Adapted from Content Delineation and Analysis for the Safety Fundamentals Examination (BCSP Technical Report 2008-1), by BCSP, 2008, Savoy, IL: Author.*

neering. By subscribing to an open and transferable set of outcomes, accredited programs begin to ensure quality and competence among those graduating from the program.

It follows that professional degree integrity is critical to the ability of a profession to maintain occupational closure. Accreditation is possibly the best mechanism available at the moment to maintaining degree integrity. That is, by subjecting programs to external scrutiny and outcomes-based education of its graduates, accreditation attempts to prevent diploma mills, protect and champion the outcomes central to the practice of the profession, and helps to readily identify reputable programs to employers seeking to decide whom to hire.

Consequently, the authors suspect a major benefit to program accreditation is that it can stimulate employer confidence. Of course, problems arise when employers do not require either specific academic credentials or professional certifications when hiring. Imagine what might happen to the credibility of medicine if hospitals decided that graduation from an accredited medical school was an optional credential for prospective surgeons.

## The Role of Professional Certification

Just as a degree from an accredited university provides solid evidence of advanced learning, an accredited professional certification is viewed by the public as credible evidence of skill and knowledge within a field of professional practice. In general, certification programs set standards and evaluate people against those standards. The standards typically include minimum requirements for education/training and experience, and demonstrated knowledge and skill through examinations.

Often, psychometric consultants assist with examination construction. These consultants review the content to ensure that it is relevant to the profession; that it reflects the breadth and depth of the profession as currently practiced; and that the examination is valid. These consultants also help set passing criteria to meet the organization's standard for minimally competent professionals (BCSP, 2008). Therefore, just as a degree from an accredited program provides solid evidence of advanced learning, an accredited professional certification can show credible evidence of skill and knowledge within a field of professional practice (Adams, Brauer, Karas, et al., 2004).

For those in the SH&E field, certification provides benefits on various levels. The individual practitioner gains the personal satisfaction of being recognized as a credentialed professional and for achieving a set standard that is recognized by peers. Certification also may result in awards or bonuses from an employer, increased responsibility or promotion, access to senior positions, as well as an elevation of membership status in organizations (e.g., professional member of ASSE).

Numerous salary surveys by both ASSE and BCSP have shown that safety professionals who are certified receive compensation well above those who are not certified. In fact, the most recent survey by BCSP in January 2008 showed a mean salary of CSPs to be \$99,244, which is substantially higher than the average salary of \$76,750 for safety professionals found in the salary survey conducted by *Safety + Health* in 2007 (Brauer, 2008).

For the employer, certification may improve the company's image, ability to compete/qualify for contracts and instill public confidence in professional performance (Adams, et al., 2004). Employers understand that candidates who have a certification from a quality source demonstrate competence through independent assessment. It only makes sense to request that applicants hold these certifications to help select qualified and competent candidates for employment.

In many certifications, there is a need to provide a developmental path, through paraprofessional certifications, so practitioners can progress toward a professional certification. Examples of paraprofessional (technician)-level certifications in SH&E are construction health and safety technician (CHST), certified loss control specialist (CLCS) and occupational health and safety technologist (OHST). All of these certifications are offered by BCSP through the



Council on Certification of Health, Environmental and Safety Technologist (CCHST). The OHST certification covers general safety and health practice at the technician level, CLCS covers loss control responsibilities common to the insurance industry, and CHST is designed for safety and health specialists in the construction industry (BCSP, 2010a).

The development of the certification examinations is both an art and a science, and the process is time consuming. For all of the reasons noted, it should not be surprising that not only is the number of certifications growing, but so too are the numbers of individuals being certified. Twenty-five years ago, the SH&E field had fewer than five options for certification; now the number is close to 300 certifications (BCSP, 2010c). However, when evaluating certifications, one must review their quality. Just as with safety degree programs, not all certifications are created equal.

### Evaluating Professional Certifications

A high-quality certification is an expensive and time-consuming endeavor. Therefore, it is critical to evaluate the certification to determine its value and whether it has gone through the rigors of accreditation from a third-party accrediting board.

In general, the higher the standards required for a certification, the more valuable it is and the more authority granted to the certificate holder by the public. Certification value is in the eye of the beholder; in the case of SH&E professionals, the beholders are external accrediting organizations, government agencies (federal and state), employers, courts and peers.

So how does one evaluate the value of a certification through the employer, courts and peers? An examination of job advertisements may give some insight into how employers value certifications. A review of the print ads by Adams, et al. (2004), found that 50% of employers either required or preferred applicants with a CSP certification.

In addition, many employers and government organizations rely on the certification process to select contractors. For those involved in expert witness testimony, the court often will establish the SH&E witness as an “expert” through relevant academic degrees, experience and certifications.

As noted, accrediting boards have been used for years to accredit academic degree programs. For certifications, there are three accrediting bodies: National Commission for Certifying Agencies (NCCA), which assesses and accredits certification programs; Council of Engineering and Scientific Specialty Boards (CESB), which accredits professional certification processes; and ANSI (ANSI/ISO/IEC 17024). These accrediting boards focus on such facets as the appropriateness of content, the process used to develop standards, the process quality, the requirements for continuation of education, and the maintenance of integrity in governance and financial affairs (BCSP, 2010c).

Accreditation of peer certification programs provides an independent, third-party evaluation of

many factors which contribute to assuring candidates, certificate holders, employers, government agencies and the public that a certification program operates fairly, openly and effectively. In the SH&E field, BCSP and CCHST certification processes are fully accredited by NCCA, and the certified industrial hygienist (CIH), certified fire protection specialist (CFPS) and the certified hazardous materials manager (CHMM) are accredited by ANSI.

### Moving SH&E From Occupation to Profession

Mature professions—occupations that have grown, developed and have distinguished themselves from mere occupations—have certain characteristics. As noted, one such characteristic is that a profession has a body or association to oversee the conduct of its members. Occupational safety and health can readily acknowledge groups such as ASSE, National Safety Council and AIHA.

However, the authors suggest that to complete its journey to a profession, SH&E must also accomplish the following:

1) The practice of hiring someone to be an organizational SH&E practitioner who has no academic preparation in the specialized body of knowledge must stop. The field must develop acceptable and usable professional qualifications for the profession (i.e., hiring standards acceptable to and applied by employers). Only this will create barriers to entry in the field, thus regulating who is and who is not a professional.

As a practice, hiring SH&E graduates from academic programs without known standards may have been understandable 20 or more years ago when only a handful of SH&E degree programs with a limited number of students were available. However, that is no longer the case, as evidenced by the ASSE College and University Directory (found at [http://www.asse.org/professionallaaffairs\\_new/directory](http://www.asse.org/professionallaaffairs_new/directory)), which identifies 191 degree programs in SH&E today in the U.S. (as of Sept. 7, 2010).

The most efficient way to accomplish this objective is to require specific educational (i.e., academic) credentials in the hiring process as do medicine, law, engineering and nutrition. This is best accomplished by program-level accreditation. The major problem today is that most programs are not accredited. Of the programs identified in ASSE’s College and University Directory, 11 are accredited by ASAC and seven are accredited by Association of Technology, Management and Applied Engineering.

With more than 90% of safety programs not accredited, the field (i.e., the SH&E profession) imposes virtually no controls on who is teaching what to students, nor are there any specified program outcomes that all students acquire by virtue of their education. Hence, any program can call itself a safety program, and any graduate can call him/herself a safety professional—a point exacerbated by those employers who do not fully understand the safety profession or the risks safety

*Employers and SH&E professional associations must work more closely with university programs to promote program-level accreditation.*

professionals seek to mitigate, and who ultimately hire personnel from unaccredited programs.

2) Establish occupational closure. Occupational closure allows some degree of demarcation between the qualified and the unqualified in a profession. Those who are not qualified according to the rules and required set of credentials are not considered professionals.

For example, in many of the well-established professions, both education and a professional certification are required. Nutritionists, for example, must graduate from an ADA-accredited academic program to be qualified to enter the required internship; in turn, a qualified internship is required prior to one taking the registered dietitian (RD) exam; in turn, states require practicing nutritionists to have an RD (American Dietetic Association, 2010).

In SH&E, program-level accreditation and credentials such as CSP and CIH can combine to establish some degree of demarcation between the qualified and the unqualified. As a result, in the near term, occupational closure would tend to reduce the number of practitioners identified as professionals much the way the Flexner Report did in the medical profession (Starr, 1984).

Anecdotally, many in SH&E professional associations have tended to resist the process of occupational closure. Presumably, since essentially all professional associations are driven by membership dollars, any process such as occupational closure that portends to reduce membership, even in the near term, would logically be viewed as bad for business.

3) Professional licensure or regulation. Anecdotally, the authors admit that licensure in the SH&E field remains a controversial topic. However, as a matter of protecting the public health and welfare, and as another mechanism to achieve occupational closure, licensure can be effective and normally carries with it the power of law, which helps enforcement. Licensure acts to close a profession from those who have not, or cannot, demonstrate the training, education or certifications required for professional practice.

For example, in the nursing profession: "Professional licensure requirements assure that the individuals who are granted the authority to practice nursing have demonstrated specified educational, examination and behavioral requirements" (NCSBN, 2010). Interestingly, in 2003, ASSE commissioned a report that identified criteria for regulating, or licensing, a profession. The Knapp Report (2003) cited the following criteria:

- 1) Does it require specialized training?
- 2) Does it impact public safety, health and welfare?
- 3) Does it need the intervention of the state to protect public safety, health and welfare?
- 4) Is the profession willing to set up criteria for entry into the profession that focuses on public safety, health and welfare?
- 5) Are the practitioners willing to submit to rules which ensure that they will not engage in rogue practice conduct once they are admitted to practice?

Consideration of these criteria clearly reveals that

the SH&E field fits as a profession worthy of regulation and licensure.

It will remain difficult, if at all possible, for SH&E to be recognized as either a mature discipline or a true profession if it fails to modify current hiring practices, fails to achieve occupational closure and cannot achieve a level of professional regulation such as licensure. In addition, employers and SH&E professional associations must work more closely with university programs to promote program-level accreditation.

Further, employers must be willing to not hire candidates who do not possess the appropriate educational credentials and certifications. It will require more professional discipline than has existed to identify the qualified (the professionals) from the unqualified (the nonprofessionals). Admittedly, this discipline could result in a short-term reduction of the number of "SH&E professionals." But, in the long run, SH&E stands to gain from this short-term exclusivity, and, more importantly, the nation will profit from it. ■

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