

Continuing Professional Education in Construction

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The term *continuing professional education*, or CPE, is somewhat of a misnomer when used in regard to the field of construction. While there are practitioners who act professionally in construction, it is not a unified *profession* in the same sense as law, medicine, or engineering. Instead, it is a fragmented field that is inclusive of other professions, such as engineering, as well as some nascent efforts at developing it into a true profession in the same context as architecture or engineering. In spite of this matter of strict definition, opportunities abound for practitioners in the construction to continue their education past the undergraduate degree, and students should be aware of these opportunities and expectations. Just like in many other disparate and applied fields, such as business or marketing, employers and employees are sponsoring and participating in these educational opportunities. This paper examines the status of these opportunities and for whom they have been developed. Next, reasons why construction employers are willing to finance CPE in this field are discussed. Finally, employee motivations for participating in CPE are examined.

Key Words: continuing professional development, CPE, profession, education

There is a certain amount of debate about exactly what defines a *profession* and whether those engaged in construction meet this definition. Wikipedia defines professions both by what they are as well as what they are not:

A “profession” is different from an “occupation” because of several important characteristics. These characteristics are special knowledge, special privileges, and special responsibilities. A professional’s special knowledge is derived from extensive academic and practical training. Their special privileges are allotted to them via professional licenses. Their special responsibilities are self imposed ethical standards. All professional codes of ethics require individuals to utilize their independent judgment and to always act in the interest of public welfare.

The learned professions are Engineering, Law, Medicine, and Theology. Accounting, Architecture, Aviation, and Military Officers are often correctly grouped with the learned professions....A member of a profession is termed a professional. However, professional is also used for the acceptance of payment for an activity, in contrast to amateur. A professional sportsman, for example, is one who receives payment for participating in sport, but sport is not generally considered a profession.

Visconti (2002) described “the distinguishing characteristics of a profession as a special type of vocation are its expertise, responsibility, and corporateness” (p. 10).

Regardless of which definition one uses, construction itself is clearly not a profession. Besides not being named on the “classic” list of professions such as medicine and law, construction falls short in other areas. While construction management does require specialized knowledge and expertise, it clearly does not require the “extensive academic and practical training” required of physicians or lawyers. Additionally, while physicians, lawyers, and even barbers and auctioneers must hold professional licenses to practice, generally construction managers and supervisors do not. While there are ethical codes for certain segments of the construction industry, there is no single ethical code or unified, self-regulating body to enforce ethical practice standards. Finally, the idea of *corporateness* has no place in the fragmented realm of construction, which has more than 818,000 different firms in the United States (Bureau of Labor Statistics, 2006b).

Unlike law or medicine, there is no single educational route to becoming a construction manager or supervisor. In fact, the concept of a university program of preparation in construction management is a relatively recent development. In the past, most construction supervisors came up “through the ranks” in their respective trades, advancing from lead man to foreman to superintendent. Their training was accomplished through the apprenticeship

programs and they advanced based on their desire and leadership abilities allowed. However, particularly after the difficult recession of the 1970s and early 1980s, individuals with better education in business and management began assuming these roles (Civitello, 1987). According to the U.S. Bureau of Labor Statistics, "employers increasingly prefer to hire individuals with a bachelor's degree in construction science, construction management, or civil engineering, as well as industry work experience" for construction management positions (2006a).

University programs in construction have evolved along with the industry. For example, Purdue University developed a "craft-oriented, non-degree program that was initiated in 1946 to re-train the returning GI's. The nature of this program slowly shifted from post-war, non-academic teaching of construction craft skills to academic teaching of drafting and surveying skills through the 1950s." (Purdue University, 2006). Programs at Purdue and other institutions now offer specific degrees in construction fields, some even offering specializations in areas such as demolition, electrical, mechanical, or heavy/highway contracting. Their stated goals are often oriented directly at preparing students to be a professional in the industry, such as Ball State University's Construction Management program, which "will prepare you for professional career opportunities in the growing construction industry. You will learn the skills needed to become a proficient manager who can guide multimillion dollar projects from concept to completion on time and within budget" (Ball State, n.d.).

These construction-specific degrees are another indicator of the increasing specialization of construction. In the past, those desiring a college preparation for a construction career typically studied either architecture or engineering. However, architects have retreated from the "master builder" ideal, where they were responsible for an entire building project from concept to design and through construction, in part for liability reasons (Civitello, 1987). The National Architectural Accrediting Board, which accredits university programs in the United States, states "People need places to eat, work, live and play. Architects transform these needs into concepts and then develop the concepts into building images that can be *constructed by others* [italics added]" (Interested, n.d.). Regardless of this design emphasis, graduation from an accredited architecture program is recognized by the Federal Government as an appropriate educational background for certain construction positions (Construction Engineer, 2007).

The term *continuing professional education*, or CPE, is therefore somewhat of a misnomer when used in regard to the field of construction. As described by some in the industry, while there are practitioners who act professionally in construction, it is not a unified *profession* in the same sense as law, medicine, or engineering. Instead, it is a fragmented field that is inclusive of other professions, such as engineering, as well as some nascent efforts at developing it into a true profession in the same context as architecture or engineering.

In spite of this matter of strict definition, opportunities abound for practitioners in the construction to continue their education. Students preparing themselves to enter this field through undergraduate education should be aware of these opportunities as well as their importance. Furthermore, they should be aware of the industry and employer expectations for continuous professional education, development, and lifelong learning; in other words, that learning does not stop with the award of a bachelor's degree. Just like in many other disparate and applied fields, such as business or marketing, employers and employees are sponsoring and participating in these educational opportunities. This paper examines the status of these opportunities and for whom they have been developed. Next, reasons why construction employers are willing to finance CPE in this field are discussed. Finally, employee motivations for participating in CPE are examined.

The Status of CPE in Construction

The status of CPE in construction is reflective of the field itself: fragmented. There is a wide variety of CPE opportunities offered to the constructor, from internal organizational training to partnerships with universities to for-profit institutions and others. As a starting point, the status of CPE in several professional organizations related to construction will be discussed, then other CPE opportunities commonly found.

Professional Engineers

One college preparatory program that has traditionally provided professionals for the construction industry is engineering. Although also often thought of primarily as designers, engineers still embrace the construction aspect of projects, as it is considered integral to the practice of engineering. In fact, *engineering is* defined as "the design, analysis, and/or *construction* [italics added] of works for practical purposes" (Engineering, 2007). ABET, formerly the Accreditation Board for Engineering and Technology, is the organization that accredits engineering programs in

the United States. While there are several engineering programs that include courses related to construction, particularly in civil engineering curricula, construction-specific programs have also developed. Currently, there are seven programs accredited by ABET in specifically construction engineering or construction engineering and management (Accredited Engineering, 2007). Just like architecture programs, the Federal government recognizes ABET-accredited bachelor degrees as adequate educational preparation for professional construction positions (Construction Engineer, 2007).

Professional Engineers (PEs) are licensed by individual states and territories, which have generally similar educational and testing requirements for licensure with a few notable exceptions, such as specific seismic requirements in California and permafrost issues in Alaska (Becoming Licensed, n.d.). In general, the licensure requirements stipulate an engineering degree from an ABET-accredited college program, passing the Fundamentals of Engineering examination, four years' experience under a licensed PE, and successfully passing the Professional Practice examination. However, there is considerable variation in CPE requirements among the states.

For example, North Carolina has required its PEs to obtain 15 credit hours (CHs) annually for license renewal, and the CPE must come from pre-approved organizations, with no self-study allowed (CE Requirements, 2007). Montana requires 30 CHs every two years, allows self study for up to one-third of this requirement, and has the added special requirement that it "must be relevant to the profession of engineering and may include technical, ethical, or managerial content. These activities should advance the professional or technical competence of the Licensee" (CE Requirements, 2007, p. 3).

The State of Indiana does not require any continuing professional education of its Professional Engineers (CE Requirements, 2007). However, it has reserved the right to do so in the future, as described in the State Board of Registration for Professional Engineers: A compilation of the Indiana Code and Indiana Administrative Code (2006): "The board may adopt rules requiring a professional engineer to obtain continuing education for renewal of a certificate under section 17 of this chapter" (p. 8). Indiana PEs are therefore under no current CPE obligation, and as a result many opportunities are not marketed to Indiana PEs. One supplier of online CPE courses for engineers and related professions is RedVector, who offers more than 900 different courses (RedVector, n.d.). For example, they only list their 2 CH "A Better Construction Contract" course as being applicable for Indiana architects and landscape architects, since there is no CPE requirement for Indiana PEs (A Better, n.d.).

Certified Construction Managers

Although a relatively small and specialized organization, the Construction Management Association of America (CMAA) offers a nationwide certification for its professionals. The *Certified Construction Manager* (CCM) designation is earned through a combination of education (including a degree in a construction-related field), experience, and examination. Renewal, which is required after five years initially and every three years after that, requires a variety of involvement and CPE activities.

The CCM renewal process is based upon points rather than credit hours, with 24 points required for renewal (Certification, n.d.). Nineteen of these points must be in specific areas, with five additional points allowed from any of them. Six points are required in "Involvement/ Commitment to the Profession," which may be satisfied through employment in the field as well as active membership in CMAA and other organizations (CCM renewal, n.d.). Four points are required in "Contribution to the CM Profession," which includes publication, teaching, mentoring, and committee work. The largest point requirement is in "CM Professional Development" which includes such explicit CPE activities as courses, seminars, and other training, as well as self-study and conference attendance. This system appears to allow considerable flexibility for a practitioners while simultaneously emphasizing education and involvement.

Project Management Professionals

The Project Management Institute (PMI) is a much larger professional organization than CMAA, but is not construction-specific. However, it does have a construction membership and also offers a national certification called the Project Management Professional (PMP). Like the CCM, it is based on a combination of education, experience, and successfully passing an examination. After obtaining the PMP certification, the Continuing Certification Requirements (CCPs) program guides members:

The purpose of the CCR program is to:

- Enhance the ongoing professional development of certificants
- Encourage and recognize individualized learning opportunities
- Offer a standardized and objective mechanism for attaining and recording professional development activities, and
- Sustain the global recognition and value of PMI's credentials

In order to satisfy the CCR Program and maintain an active credential status individuals who have attained the PMP and/or Program Management Professional credential(s) must accrue and report a minimum of 60 professional development units (PDUs) during each CCR cycle, which is typically 3 years, complete an Application for Certification Renewal and payment of the renewal fee, and reaffirm the PMI Code of Ethics and Professional Conduct. (Continuing Certification, n.d., ¶ 1-2).

The PDUs for renewal in this system are organized into five categories, as detailed in the Continuing Certification Requirements Program (2006):

1. Formal Academic Education

This category includes university and other formal academic coursework related to project management. If the course is not completely related, then the PDUs are prorated: "When only a portion of a course relates to project management, PDUs are calculated on a percentage of the overall curriculum focused on project and/or program management" (p. 5).

2. Professional Activities and Self-directed Learning

Professional Activities include a wide range of pursuits, including authoring articles, presenting at meetings and conferences, developing curricula, and practicing project management. *Self-directed Learning* is defined more broadly:

Self-directed learning activities are individualized learning projects involving personally conducted research or study. Learning may include informal activities such as discussions or coaching sessions with colleagues, co-workers, clients, or consultants. It may include articles, books, instructional manuals, videos, CD-ROMs, or other material resources. (p. 6)

3. PMI Registered Education Providers/PMI Components

The Project Management Institute registers certain educational providers (for a fee), which provide a transcript with a particular logo indicating their status.

4. Other Provider

This category includes formal courses from educational providers that are not registered as detailed above

5. Volunteer Service to Professional or Community Organizations

This category includes serving as an officer in PMI and related organizations as well as providing project management services pro bono to charitable organizations, such as Habitat for Humanity.

Like the Certified Construction Manager program, the Project Manager Professional renewal process allows a wide range of CPE activities to be used to fulfill the recertification requirements. However, the PMP program does not have the emphasis on formal education that the CCM program does.

Certified Professional Constructor

The American Institute of Constructors offers a voluntary certification program for becoming a *Certified Professional Constructor* (CPC). There are two levels of certification: the Associate Constructor (AC), for those within nine months of graduating from an accredited construction program, and the Certified Professional Constructor (CPC), for those with a minimum of seven years industry experience after graduation. Although it has been endorsed by several prominent construction groups, including the American Subcontractors Association, the Associated Builders and Contractors, and the Associated General Contractors of America, it remains a completely voluntary process (Industry Endorsements, n.d.). Industry participation remains sparse, with approximately 700 CPCs on the latest directory (Directory, 2007).

There are currently several schools are requiring their students to sit for and pass the Associate Constructor (AC) degree. This has resulted in a surge of ACs, and provides a useful, standardized tool for the universities to evaluate their programs. In addition to using their students' results as an internal evaluation tool, some even use them as a recruiting tool. The University of Nebraska – Lincoln proudly displays their students' higher than average pass rates on the AC examination on their web site (Construction Management, 2007). Students who become involved in the professionalization at this early stage of their careers may be reasonably expected to be more likely to continue to participate, even if the numbers are still relatively small.

CPCs are also required to meet certain criteria for recertification. They measure continuing professional development activities by credits, 10 of which are needed every four years. The credits may be earned in four areas as detailed on their CPD Requirements Web site:

1. Education

This category is the only one which has a minimum for recertification: four credits every four years, with a maximum of six credits. This category includes formal courses with an obvious preference given to “pre-approved” providers.

2. Teaching, Research, and Publication

A maximum of two credits may be earned in this category, which does not include full-time employment.

3. Professional Practice

A maximum of three credits may be earned in this category, with one credit being earned for every year of professional practice (including full-time teachers).

4. Professional Affiliation and Community Service

A maximum of three credits may be earned in this category as well, with qualifying activities including serving as an officer in the AIC, on zoning boards, etc.

The CPC requirements are not as flexible as some of the other programs, although they also emphasize formal CPE as a vital component of being a professional.

Employer Willingness to Sponsor CPE

Employers sponsor CPE in construction for a variety of reasons. Some construction organizations, particularly government organizations at all levels, encourage or actually require professional registration, typically as a professional engineer. For example, a position description for the Illinois Department of Transportation (DOT) states: “Professional Engineer License MUST accompany application for this position” highlighted in yellow (Doubet, 2007). Employers that require licensure and/or certification may be more willing to sponsor CPE, particularly if it is required for renewal. As noted earlier, however, some states (such as Indiana) do not require CPE for renewal of professional engineering licenses, although many Indiana state and municipal governments still encourage participation in a variety of CPE opportunities (Training and Development, n.d.). As the trend for requiring CPE for licensure continues, it can be expected that more employers of licensed professionals, including those in construction, will continue.

Construction employers might also be willing to sponsor CPE for its employees for other, voluntary certification programs as discussed above. Having employees that are certified in certain construction-related programs may be thought of as an extra advantage in trying to market or compete for construction projects, particularly in the private sector. Particularly since certification in construction is a voluntary process, having certified constructors may be seen as a type of competitive or sales advantage in certain situations.

CPE is a growing trend in many fields, with employers sponsoring most of the costs. Cervero (2000) notes that “the amount of continuing education offered at the workplace dwarfs that offered by any other type of provider, and probably all other providers combined” and that “the corporate average spent on employee education in the USA is about 1.5% of payroll and 1% of gross revenues” (p. 19). As CPE becomes more common in every industry, employers will embrace CPE as another recruiting and retention tool. Cervero (2000) asserts that “we know that training programmes are an important benefit that can help to retain employees” (p. 27). For example, one midsize

construction firm in Central Indiana offered reimbursement for job-related university courses, but the reimbursement would be recouped if the employee left the firm within a year (Employee Manual, n.d.).

As is common to all industries, construction employers also look to CPE to provide specific educational requirements and keep their employees up-to-date on construction-related subjects. Although some aspects of construction seemingly change very little, others are in constant flux. For example, masonry is still laid much as it has been for millennia, but litigation and regulation changes in construction safety make CPE a necessity for this subfield. Cervero (2000) stated “Customized programmes between university business schools and companies have mushroomed in recent years as businesses seek continuing education for its managers that reflect corporate priorities” (p. 21). Employers might also sponsor these university-industry collaborations to keep good relations with a source of quality graduates.

Construction firms of all sizes have also developed their own, in-house programs. Turner Construction, one of the largest construction companies with offices nationwide and internationally, has *Turner University*, originally developed as a CPE program for its own employees but now available to others at a fee. Turner University offers online courses on everything from the building envelope to teamwork (Turner University, n.d.). A regional firm in Central Indiana, the R.L. Turner Corporation, offered its own in-house leadership program based on the Army’s manual on leadership. Other firms also develop their own programs to save costs, develop very specialized programs, and motivate teachers and learners in the organization.

Finally, construction employers are interested in improving the performance of its professionals in their employ. Cervero (2000) wrote “there is strong evidence that continuing education can and often *does* improve professionals performance” (p. 26), although accountability can be elusive at times. Flagello (1998) believes that CPE empowers workers and that “an empowered workforce is economically more viable as organizations recognize that the components of competitive advantage are less difficult to achieve” (p. 46). CPE may be thought of as one more aspect of a comprehensive improvement program to be able to compete in the modern construction marketplace.

Employee Willingness to Participate in CPE

Employees in the construction industry, just like other fields, are willing to participate in CPE opportunities for a variety of reasons. For the so-called “true” professionals in construction, such as architects and engineers, that require licensure to practice, CPE may be mandatory for renewal. Besides this strong incentive for licensed professionals in those states requiring CPE, other professionals in states that do not currently require CPE might participate as a preparatory measure in case the statutes are changed or in case the professional wants reciprocity in a state that does require CPE.

Other constructors who have gone to the effort of obtaining a voluntary certification related to construction, such as the CCM, PMP, or CPC credentials discussed earlier, will also be more likely to participate in CPE to maintain these certifications. This will be particularly true for those credentials that emphasize CPE in the renewal process, such as the CCM and CPC programs. Those universities that require their graduates to take and pass the AC examination may well be setting them on a path on continuing professional education and development.

Additionally, as construction becomes more professionalized, CPE will naturally become more prominent in construction. As noted by Cervero (2000), “a central feature of North American societies in the 20th century was the professionalization of their workforces” (p. 16). Concurrent with this trend is “the use of professionals’ participation in continuing education to regulate their practice has not abated for the past two decades” (p. 24). The trend is unmistakable: professionalization and CPE are in the future.

Additionally, constructors will look at CPE as another aspect of their personal employability. Employee turnover in the construction industry, already amongst the highest in any industry (Elliot, 2007) high in construction, necessitates that employees constantly stay current and marketable. Certification and CPE may give job seekers in the industry an extra edge in the hiring process and enhance retainability of current employees.

Some construction employees will also be motivated by extrinsic factors. The inimitable “certificate, suitable for framing” for one’s “I love me” wall at the office are passed out at so many CPE courses for a very good reason: people desire them. University-offered courses, whether in collaboration with industry or independent, are

particularly desirable according to Alejandro: "Professionals take pride in having certificates with a university name on them" (p. 15).

Finally, there are many intrinsic rewards of improving one's professional practice. Although hard to measure and account for in a corporate report, professional pride instills the desire for many to continue to seek new and better ways of constructing. Even though Cervero (2000) remarked "most practitioners understand that the problems they face as professionals are 'not in the book'" (p. 25), the desire is still strong to seek continuing professional education to help prepare them for the challenges ahead.

Implications for Undergraduate Students in Construction Programs

Students currently enrolled in construction programs, whether engineering, construction management, or business, should be aware of the professionalization issues in the construction industry. As they prepare to act professionally within the industry, although not considered "true professionals" by some definitions, they should be aware of the licensing and certifications that are common to the industry, as they will both encounter them and might even be encouraged to join their ranks. This is particularly true for students enrolled in programs that require them to participate in the Associate Constructor examination.

By understanding the status of these opportunities and for whom they have been developed, the reasons why construction employers are willing to finance, and the employee motivations for participating in CPE, they will better understand the expectations of the industry after graduation. Additionally, this awareness might prove beneficial in better aligning their personal continuing professional educational goals with those of potential employers during job-seeking. Finally, it impresses the need for continuous education, improvement, and lifelong learning throughout their construction careers.

References

- A better construction contract. (n.d.). Retrieved July 13, 2007 from the RedVector Web site: <http://www.redvector.com/LMS20/Account/Order/Shopcart/ItemDetail.aspx?id=cc590b68-8604-445d-8f9e-0f78ff0f9f25>
- Accredited engineering programs. (2007, 25 June). Retrieved June 25, 2007 from the ABET Web site: <http://www.abet.org/schoolareaeac.asp>
- Alejandro, J. (2001, Winter). Understanding professionals' reasons for participating in continuing professional education. *Adult Learning*, 12, 15.
- Ball State University. (n.d.) *Construction management option*. Retrieved June 22, 2007 from <http://www.bsu.edu/technology/construction/>
- Becoming licensed as a professional engineer. (n.d.). Retrieved July 13, 2007 from the National Society of Professional Engineers Web site: <http://www.nspe.org/lc1-how.asp>
- Bureau of Labor Statistics. (2006a, August). *Construction managers*. Retrieved December 3, 2006 from <http://www.bls.gov/oco/pdf/ocos005.pdf>
- Bureau of Labor Statistics. (2006b). *2006-2007 Career Guide to Industries 2006-2007*. Bulletin 2601, Washington, DC, 48-53.
- CCM renewal report form. (n.d.). Retrieved July 13, 2007 from the Construction Management Association of America Web site: http://cmaanet.org/user_images/renewal_form.doc
- CE requirements – engineering. (2007, May). Retrieved July 13, 2007 from the National Society of Professional Engineers Web site: http://www.nspe.org/licensure/state_ce_requirements.pdf

Certification renewal. (n.d.) Retrieved July 13, 2007 from the Construction Management Association of America Web site: https://cmaanet.org/cmci/certif_renewal.php

Civitello, A. M. (1987). *Contractor's guide to change orders: The art of finding, pricing, and getting paid for contract changes and the damages they cause*. Englewood Cliffs, NJ: Prentice Hall.

Construction engineer. (2007, 15 June). Retrieved June 25, 2007 from the U.S. Department of State Foreign Service Specialties Web site: <http://www.careers.state.gov/specialist/opportunities/constructeng.html>

Construction management. (2007). Retrieved June 26, 2007 from the University of Nebraska – Lincoln Web site: <http://engineering.unl.edu/academicunits/ConstructionManagement/CPC.shtml>

Continuing certification requirements. (n.d.). Retrieved July 13, 2007 from the Project Management Institute Web site: http://www.pmi.org/info/PDC_PMPCCR.asp

Continuing certification requirements program. (2006, September). Project Management Institute: Author.
CPD requirements. (n.d.). Retrieved July 15, 2007 from the American Institute of Constructors Web site: http://www.constructorcertification.org/mypd/cpd_requirements.htm

Cervero, R. M. (2001, January). Continuing professional education in transition, 1981–2000. *International Journal of Lifelong Education*, 20, 16-30.

Directory of certified professional constructors and associate constructors. (2007). Retrieved June 26, 2007 from the American Institute of Constructors Web site: http://www.constructorcertification.org/mtpc/certificant_list.htm#

Doubet, S. (2007, 11 July). Technical vacancy. Retrieved July 15, 2007 from the Illinois Department of Transportation Web site: <http://www.dot.state.il.us/techapp/D5vacancy.html>

Elliot, K. (2007, 5 February). ROEL Construction creates university to retain employees, build leadership. Retrieved July 15, 2007 from the Reed/ACP Construction Data Web site: <http://www.acppubs.com/article/CA6409097.html>

Employee manual. (n.d.). The R. L. Turner Corporation: Author.

Engineering. (2007, June 21). In *Wikipedia, The free encyclopedia*. Retrieved June 25, 2007, from <http://en.wikipedia.org/wiki/Engineering>

Flagello, J. R. (1998). Continuing education for the professions: The catalyst for workplace empowerment. In Young, W. H. (Ed.). *Continuing professional education in transition: Visions for the professions and new strategies for lifelong learning*. Malabar, FL: Krieger.

Industry endorsements. (n.d.). Retrieved June 26, 2007 from the American Institute of Constructors Web site: http://www.constructorcertification.org/crb/professional_endorsements.htm

Interested in a career in architecture? (n.d.). Retrieved June 25, 2007 from the National Architectural Accrediting Board Web site: http://www.naab.org/newsletter1727/newsletter_show.htm?doc_id=494213

Profession. (2007, June 21). In *Wikipedia, the free encyclopedia*. Retrieved June 22, 2007, from <http://en.wikipedia.org/w/index.php?title=Profession&oldid=139740274>

Purdue University. (2006). *Building construction management: About us: History*. Retrieved December 3, 2006 from <http://www.tech.purdue.edu/bcm/aboutus/history.cfm>

RedVector. (n.d.). Retrieved July 13, 2007 from the RedVector Web site: www.redvector.com

State board of registration for Professional Engineers: A compilation of the Indiana Code and Indiana Administrative Code. (2006). Retrieved July 13, 2007 from:
http://www.in.gov/pla/bandc/engineers/engineers_compilation.pdf

Training and development. (n.d.). Retrieved July 15, 2007 from the Indiana State Personnel Department Web site:
http://www.in.gov/jobs/training/Cat_idx.htm

Turner University. (n.d.). Retrieved July 15, 2007 from the Turner Construction Web site:
<http://www.turneruniversity.com/imageserver/Extranet/turner/courselist.asp>

Visconti, S. (Ed.). (2002). *Foundations of officership*. Boston: McGraw-Hill.