DEV.05

New Career Path for the Certified Cost Consultant/Engineer

W. Doug Creech, CCC

Who moved my cheese? That was the hot topic as employees were laid off from the manufacturing segment of the US economy during the mid-1980s and beyond. Major industries including textiles, chemicals, furniture, appliances, and automobiles shifted operations off-shore. With those moves, so went the large construction projects that were needed to sustain those industries. For those manufacturers, the cost engineering jobs in the US have been dramatically reduced as well. Yet the domestic construction industry is booming. Resourceful Certified Cost Consultants/Engineers (CCCs/CCEs) from the manufacturing segment can adapt and follow the money to the commercial segment (healthcare, government infrastructure, universities and schools, hotels, casinos, banking, retail, and more).

Owners in the commercial segment need cost engineering expertise as much or more than manufacturing owners. Many just don't know it. So the demand for construction cost consultants and engineers in the commercial segment has been weak, at best. And then there was Sarbanes-Oxley (SOX).

The Sarbanes-Oxley Act was passed by the US Congress in 2002 in response to the corporate financial scandals at Enron, Tyco, Worldcom and others. It was signed into law July 30, 2002. "The act established the Public Company Accounting Oversight Board as a non-profit corporation, consisting of five members, to oversee the audit of public companies that are subject to the securities laws of the US. The US Securities and Exchange Commission (SEC) has specific oversight and enforcement authority over the board" [1].

The requirements of the act have created significant change in corporate financial management. For example, Section 404 requires management to ensure adequate internal controls and procedures are in place for accurate financial reporting, and to make assessments of the effectiveness of internal controls at the end of each fiscal year. Also, the company's external auditor must review and attest to management's assessment. Corporate audit committees (part of the governing board of directors) are required to lead the effort to ensure compliance with SOX. Chief audit executives (CAE) are required to report directly to the audit committees and keep them informed of their company's compliance status. This has created an increased demand for internal auditors who must assess internal controls and audit high risk work processes.

One area of increased interest to CAEs is construction. Construction contracts are high risk for fraud and contract administration mismanagement. Many companies are increasing their in-house audit staffs to include one or more construction auditors. Other companies are using outside construction contract auditors to augment their internal audit staffs. Even though owners are understandably concerned about the costs of complying with SOX, they quickly learn that construction auditing is actually a profit center. Savings from audits of construction projects will easily generate enough value to offset the entire cost of construction auditors and significantly offset the cost of the remaining internal audit department.

CONSTRUCTION AUDITS REDUCE PROJECT COSTS

While construction contract audits reduce cost, the amount of the reduction may be impacted by when the audits are performed. Owners tend to think construction audits are to be performed at the end of a project. CPAs and outside consultants specialize in providing this service. Recovery amounts are specifically identified and owners "can see what they get." These are quite typical and generally identify cost recovery opportunities of one percent or more of the total project costs. While such post-project audits are very useful, they have the drawback of requiring the owner to negotiate, and sometimes arbitrate/litigate, actual recoveries. However, certified cost consultants/engineers are experienced at controlling project costs throughout the life of the activity.

PROJECT LIFE CYCLE AUDITS A FIVE PERCENT IMPACT

A more cost-effective way to audit construction activity is to have internal construction auditors perform project life cycle (PLC) audits. Using the life cycle approach, internal auditors perform the following.

- a pre-construction audit (sometimes known as a pre-award audit) early in the life of the project;
- one or more proactive audits as the project is executed, and
- a close-out audit at the end of the job. Refer to table 1 for specific life cycle auditing areas.

The project life cycle audit process (pre-construction, proactive, and close-out) is by far the most beneficial to owners and can result in total cost reductions (avoidances) of five percent or more of the total project cost. This results from preventing or

Project Life Cycle Audits	
Preconstruction	Consultations and reviews of the contract, bid process, change management procedures, general conditions/indirect field cost budgets, allowable labor burden mark-ups, evaluations/validations of estimates vs. scopes, staging and logistics budgeting and management, and more.
Proactive	Reconciliation of actual subcontracts to GMPs, verification of performance & payment bonds and liability insurance certificates and costs, monthly audits of pay applications and supporting details, validation of equipment rental rates, verification of scopes of work and field inspections for quality and/or substitutions, audits of change orders, and other things as identified.
Close-out	Collection of final releases of liens and claims, reconciliation of allowances and contingencies, verification of collection and disposition of project owned equipment, and others audits of risk areas as may be appropriate.

Table 1—Project Life Cycle Audits

identifying over-billings and affects off-setting credits before the project is complete. This audit process not only saves more money, it improves the overall administration of construction contracts.

The major drawback of PLC audits is that the avoided costs are difficult to quantify. Convincing senior management of the true value added can be difficult. A suggested way to accomplish this is by performing post-project audits of recently completed projects, quantifying recoveries, and recommending best practices for the financial administration of construction contracts. Experienced Certified Cost Consultants/Engineers are, as a general rule, the best qualified professionals to provide these services.

THE COMPETITION

Accounting professionals including certified public accountants (CPAs) and certified internal auditors (CIAs) are keenly aware of the requirements of Sarbanes-Oxley and are stepping up to meet construction contract audit needs. CPA firms such as Deloitte & Touche, professional accounting service providers such as Jefferson-Wells, and independent consultants are actively marketing construction auditing services. Some of these have outstanding abilities and auditing experience. Many have some construction contract auditing experience. But few in the accounting profession have hands-on project cost control, construction contract administration, change order management, and in-the-field experience as do many certified cost consultants/engineers. Thus, the CCC/CCE has an advantage.

The certified professionals most often considered for internal auditing positions are shown in table 2 [4].

CPAs, CIAs and CMAs are considered generalist and may be found auditing a broad range of activities, but even they tend to specialize in selected areas. CISAs, CFEs, CFSAs, CITPs, and MCSEs are specialist and focus on their area of expertise. Most notably absent from this list is the construction contract auditing specialist. Construction contract auditing is complex and is best performed by individuals with expertise in construction.

Internal Auditors
Certified Public Accountant (CPA)
Certified Internal Auditor (CIA)
Certified Information Systems Auditor (CISA)
Certified Fraud Examiner (CFE)
Certified Financial Services Auditor (CFSA)
Certified Management Accountant (CMA)
Certified Information Technology Professional (CITP)
Microsoft Certified Systems Engineer (MCSE)

Table 2—Internal Auditors

CCCs and CCEs can take the initiative to add Certified Cost Consultants/Engineers to this list of sought-after auditors.

WHY AUDITING?

Because the field of internal auditing is hot! CIA James Bass reports, "Because of the increased scrutiny of publicly traded companies from the Sarbanes-Oxley Act of 2002, management of all types of large and small organizations is taking note of internal controls" [2]. Internal audit organizations have more visibility and leverage as they assess internal control processes and report their findings and recommendations to upper management. Likewise, increased competition for qualified professionals with the expertise and ability to provide high quality opinions has elevated salaries.

CIA Karen Titus agrees: "Word is getting out: Internal audit is a darn good career" [3]. Pay and working conditions can be very attractive, and for those who aspire to upper management ". . . internal audit is so broad-based, 'it's almost the way you'd want to train someone who's on the management' . . ." fast-track [3].

Internal audit organizations, post-SOX, are receiving more managerial attention, respect and support than their cost engineering counterparts. This increased profile has also improved opportunities to move into upper level positions of the entity. Clearly, certified professionals are in demand.

Internal auditing is not just hot here in the US, Robert Melville, director of MSc Internal Auditing and Management at the Cass Business School in London says "Probably the biggest growth areas for internal auditing are in the People's Republic of China . . ." [4]. China also has the largest construction economy in the world. CCCs/CCEs who speak Chinese, Japanese and other languages may find the international internal auditing market very attractive.

IS CERTIFICATION A MUST?

Yes. This is primarily because of the competition and internal auditing's need for highly qualified professionals. Construction contract auditors who are not certified will find it very difficult to even get in the door. Certification is an essential first step in establishing oneself as a credible expert. Additionally, certified individuals are held in higher esteem, command higher salaries and have a competitive advantage for both professional progression and promotions to higher levels of managerial responsibility. Though CCC/CCE certification attests to one's expertise in cost engineering, a working knowledge of the standards of internal auditing as published by The Institute of Internal Auditors is also essential.

THE INSTITUTE OF INTERNAL AUDITORS (IIA)

The Institute of Internal Auditors is the ultimate authority on the practice of internal auditing. CCCs/CCEs wanting to perform audits of construction contracts are strongly encouraged to join the IIA. Visit their website at www.theiia.org.

The IIA developed the framework that ". . . facilitates consistent development, interpretation, and application of concepts, methodologies, and techniques useful to . . ." the profession of internal auditing [5]. That framework was updated and published by the IIA in January, 2004, in the form of **The Professional Practices Framework** (PPF). It includes the IIA's Code of Ethics, International Standards for the Professional Practice of Internal Auditing, and Practice Advisories. The new standards "became mandatory guidance for all IIA members and Certified Internal Auditors (CIAs) on January 1, 2004" [5]. CCCs/CCEs should obtain a copy of the PPF, read it for understanding, and dedicate themselves to performing audits of construction contracts consistent with the standards. By joining the IIA CCCs/CCEs become subject to the mandatory guidance set forth in the PPF.

Standard 1200 - Proficiency and Due Professional Care
1210 - Proficiency - Internal Auditors should posses the knowledge, skills, and other competencies needed to perform their individual responsibilities.
1210.A1 - The chief audit executive should obtain competent advice and assistance if the internal audit staff lacks the knowledge, skills, or other competencies needed to perform all or part of the engagement.
1220 - Due Professional Care - Internal auditors should apply the care and skill expected of a reasonably prudent and competent internal auditor. Due professional care does not imply infallibility.
1230 - Continuing Professional Development - Internal auditors should enhance their knowledge, skills, and other competencies through continuing professional development.

Table 3 - IIA Standard 1200

IIA'S CODE OF ETHICS

Like the Association for the Advancement of Cost Engineering International (AACE Inetrnational), the Institute of Internal Auditors has a Code of Ethics. According to the IIA Professional Practices Framework, this " . . . code of ethics is necessary and appropriate for the profession of internal auditing, founded as it is on the trust placed in its objective assurance about risk management, control, and governance" [6]. The code has requirements with respect to integrity, objectivity, confidentiality and competency. The competency requirement set forth in the code specifies that internal auditors "shall engage only in those services for which they have the necessary knowledge, skills, and experience" [7]. Without a doubt, CCCs/CCEs have knowledge, skills, and experiences that give them a competitive advantage over other professionals when auditing construction contracts.

IIA'S INTERNATIONAL STANDARDS

The primary responsibilities of internal auditors are to do the following.

- provide assurance services to senior management and the audit committee that adequate work processes are in place and are being followed; and
- provide consulting services to operating managers, senior managers, and the audit committee upon request or when there is a recognized need.

The IIA Standards are intended to provide a framework to facilitate the internal auditing process and ensure that internal audit services are performed in a "systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes" [8]. The standards consist of attribute standards, performance standards, and implementation standards. CCCs/CCEs must be familiar with them.

ATTRIBUTE STANDARDS

Attribute standards address the qualities and characteristics required of internal audit organizations and internal auditors. Standard 1200 – *Proficiency and Due Professional Care* is especially noteworthy since it details many attributes possessed by CCCs/CCEs. See table 3 [9].

CCCs/CCEs are uniquely qualified to perform construction contract audits, as the above table indicates. AACE International's continuing education requirements to maintain certification (required every three years) clearly support the continuing professional development requirements of the Institute of Internal Auditors. Even so, CCCs/CCEs are encouraged to also include IIA training courses in their personal development program. One course that is highly recommended is IIA's *Effective Auditing of Construction Activity*.

Attribute Standard 1300 – Quality Assurance and Improvement Program – requires chief audit executives to ensure their internal audit organization is properly staffed with competent personnel and that their program is executed in a manner that adds value and improves overall corporate operations. Identifying savings, monitoring internal controls, and preventing fraud are primary internal audit objectives.

CAEs are also required to have an internal audit quality assessment process that monitors and assesses the overall effectiveness of the internal audit program and organization. This process must include internal assessments and external assessments. IIA Standard 1300 requires external assessments be conducted at least every five years. The results of the external assessments are to be reported to the audit committee and the board of directors. Corporations with significant construction activity that have no, or professionally inexperienced, construction auditors would surely find this part of their internal program at risk. The ability to perform construction contract audits effectively is important.

PERFORMANCE STANDARDS

Chief audit executives are expected to ensure their audit program and staff are adequate to meet the needs of the organization. IIA Standard 2000 – Managing the Internal Audit Activity – requires CAEs to assess corporate risks annually, to develop annual audit plans that effectively address risks, and to report their plans and resource abilities/needs to senior management and the board. Significant construction activities must surely be included in such risk evaluations and plans.

Certified Cost Consultants/Engineers must be familiar with the nature of internal audit work as defined by the Institute of Internal Auditors. Performance Standard 2100 requires that the audit activity evaluate risk exposures regarding protection and control of corporate assets and compliance with contracts. Internal Auditors are expected to incorporate their knowledge of risk exposures into their audit procedures. Experienced CCCs/CCEs have extensive, first-hand knowledge of construction contracting and project cost controls.

Internal auditors are also expected to provide consultations and conduct consulting engagements. Such consultations may be somewhat informal or may be highly structured. In any event, CCCs/CCEs are uniquely experienced to consult on the financial administration and cost control of construction activities. All consultations, even if informal, should be documented. Structured consulting engagements should be well planned and objectives clearly defined to ensure they are performed in a manner that adds value consistent with the goals of the organization. Business excellence (profit enhancement) must be a priority.

The IIA's *Attribute and Performance Standards* address the internal audit process and staff competencies. Their implementation standards expand upon the attribute and performance standards and provide more specific guidance about how best to perform specific types of audit engagements.

IMPLEMENTATION STANDARDS

Implementation standards have been established for both assurance and consulting activities. They are supported by practice advisories to aid auditors in the consistent application of the standards. Some practice advisories of particular interest to construction auditors include the following recommendations.

Practice Advisory 1210.A2-1: Identification of Fraud

This practice advisory helps internal auditors protect against acceptance of kickbacks, embezzlement or other misappropria-

tion of money or assets, payment for services not actually provided, unauthorized substitutions, acceptance of gifts, and so forth. These are fraud risks that are inherent in all construction activity. Note the "A" in the numbering of Practice Advisory 1210.A2-1, indicates this as an assurance practice advisory.

The **IIA Framework** further states: "Consulting engagement objectives should be consistent with the overall values and goals of the organization" [10]. Note the "C" in the numbering of Practice Advisory 2130.C1, indicates this as a consulting practice advisory. Construction auditors must weigh the cost of implementing potential consulting recommendations against the risk exposure. Management may rely heavily on the expertise of Certified Cost Consultants/Engineers when addressing construction activities.

While many cost consulting/engineering jobs have disappeared from the manufacturing segment of the economy, the Sarbanes-Oxley Act of 2002 has created an increased demand for internal auditors with construction contract cost experience. Internal audit careers compare favorably with traditional internal cost engineering careers. Pay rates can be competitive and in the post-SOX era, internal auditors often are considered more valuable and necessary than cost engineers. By acquainting themselves with the processes and standards of the Institute of Internal Auditors, CCCs/CCEs can very effectively use their experience as internal auditors. As the value of construction contract auditors becomes more widely known and accepted there may develop a critical mass sufficiently large to justify the creation of a Certified Construction Contract Auditor professional. Until then, CCCs/CCEs can become the preferred professional internal auditor of construction contract costs.

End Note

The author successfully transitioned from the manufacturing (E. I. DuPont de Nemours & Co., Inc.) cost engineering world to the commercial segment. As manager of construction auditing with the third largest publicly owned not-for-profit healthcare provider (Carolinas HealthCare System) in the U. S., he has identified savings of millions of dollars and recommended several best practices for improving the financial administration of construction projects.

REFERENCES

1. Creech, W. Doug, *Sarbanes-Oxley and Cost Engineering*, **Cost Engineering**, Vol. 48, No. 7, (July, 2006), pp. 8-12.
2. Bass, James, *Internal Audit – A Wise Career Choice!*, http://tampabayiia.org/PDF/Essay_JBass.pdf, undated.
3. Titus, Karen, *Expanding Horizons Lure New Breed of Internal Auditors*, http://www.knowledgeleader.com/KnowledgeLeader (January 3, 2005).
4. Koller, Lynn, *A Profession in Demand*, Institute of Internal Auditors, Inc., (2003).
5. The Institute of Internal Auditors (IIA), **The Professional Practices Framework**, (January, 2004), p. xxi.
6. Ibid, p. xxix.
7. Ibid, p. xxxii.
8. Ibid, p. xxii.
9. Ibid, pp. 8-10.
10. Ibid, p. 17.

W. Doug Creech, CCC
Manager/Construction Auditing
Carolinas Healthcare System
720 E Morehead St., Suite 200
Charlotte, NC 28202, US
Phone: +1.704.573.3581
Email: creechd155@msn.com