

Construction Audit—An Essential Project Controls Function

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ABSTRACT: Many construction projects, both publicly- and privately-funded, require that a project audit be performed by an independent party. The audit not only tests the accuracy of invoices and other charges incurred against the construction project, but may include a review of processes used in project management and project cost/ schedule controls, and a comparison of those processes to industry best practices. Thus, the audit function is an essential project controls tool.

KEY WORDS: Audit, construction, cost, project and schedule controls, and management

Many construction projects, both publicly and privately funded, require that a project audit be performed by an independent party. The audit not only tests the accuracy of invoices and other charges incurred against the construction project, but may include a review of processes used in project management and project cost/schedule controls, and a comparison of those processes to industry best practices. Thus, the audit function is an essential project controls tool.

The Right to Audit

The Public Company Accounting Reform and Investor Protection Act of 2002, also known as the Sarbanes-Oxley Act of 2002, was a US federal act created to protect shareholders and public interest.

In addition to other requirements, certain sections of the act require all regulated companies to establish an audit committee, to document internal controls and evaluate their effectiveness, and to certify that financial statements fairly reflect the company's financial situation and operations for the period presented.

The Sarbanes-Oxley Act has had an impact on construction projects because capital expenditures for new construction, renovations, and expansion represent a substantial investment, usually shown on the balance sheet as "assets." Such items as capital assets, construction in progress, bond issuances, leases, depreciation and capitalized interest may be reflected in several places in the financial statement, including the aforementioned balance sheet, income statement, cash flow statements, and notes to the financial statement.

With capital expenditures given such high visibility on the financial statement, and with increasing corporate awareness of accountability and expenditure controls, it is the rare construction contract that does not contain a "right to audit" clause.

The clause is commonly found in government contracts, and is increasingly being included in private-sector contracts. The language varies from contract to contract, but the clause typically provides the owner with a restricted or unrestricted right to audit operations, contracts, projects, programs, and expenses.

The owner may choose to audit continuously, at intervals, or at closeout. The clause allows the owner the right of access to all of the contractor's files during the contract term, and often for a specified period following final payment on the contract. Audits are becoming an integral and unavoidable part of any construction project.

Audit Scope

When the owner exercises their right to audit, the objective may be a financial audit, a performance audit, or some combination of the two. The scope of the audit is determined by the owner, who may elect to audit a construction contract, a specific supplier, a construction project, or the entire construction program. Audits of publicly funded construction may be required by law, whereas private sector audits are typically requested by internal corporate governance, as a representation of accountability to shareholders and stakeholders.

Financial audits include financial statement and finance-related audits. A financial statement audit is an examination

of a company's financial statements and records, in order to provide reasonable assurance that the data is accurate and complete, and is presented according to generally accepted accounting principles (GAAP). There are several kinds of finance-related audits, but the best known is a direct result of Sarbanes-Oxley section 404—an audit of the entity's internal control structure for financial reporting and safeguarding assets.

In contrast, a performance audit provides an independent assessment of performance, with the purpose of determining how well established goals and objectives are being achieved, and with the additional objective of identifying opportunities for improvement.

Performance audits may include functional audits for economy and efficiency, evaluating the planning process, space use, staffing, and established procedures. A performance audit for a construction program will typically combine an in-depth review of expenditures with an analysis of compliance with applicable laws and funding requirements, and may also include an examination of the program management plan and its effectiveness as practiced.

In this capacity, the auditor for a performance audit is acting in an advisory role, where the performance audit results in findings, conclusions, and recommendations presented for the purpose of client decision-making.

Some broad audit scopes may include a review of installed materials and equipment to ensure that the contract specifications have been satisfied and the quantities billed match those installed. Audit work of this type requires the use of technical auditors who have an engineering background and experience with specifications compliance.

Conducting the Audit

Once the owner determines to perform an audit, whether through an outside consultant or through their own internal audit department, an audit team will be assembled. Typically, this blended team will consist of the auditors, and representatives from the owner and the contractor. Owner team members may include staff from internal audit, finance, and project management. Contractor team members may include the project

executive and staff from project management, project controls, and corporate finance.

At the kickoff meeting attended by the audit team, the audit scope will be reviewed and the work plan will be discussed. The audit may be conducted in phases by one team, or smaller teams may be assigned to specific portions of the audit.

The owner may provide the auditors with a list of specific issues to investigate. The auditors will require work space at both the owner's and the contractor's offices, either at corporate headquarters or in the construction trailer. A spirit of cooperation will need to be emphasized, because the contractor (and sometimes the owner's staff) tend to view the audit as an intrusion.

During or immediately prior to the kickoff meeting, a document request will be provided to both the owner and the contractor, so that the necessary documentation may be made available to the auditor in a timely fashion.

For construction projects, the owner will typically require the contractor to keep records of all labor, materials, and other items furnished during construction or the performance of services. These records may be requested for review during the audit, including the following.

- employee timesheets;
- daily logs;
- payroll records;
- subcontract and vendor files with bid documentation;
- contracts, change orders, purchase orders, invoices and canceled checks;
- owned and leased equipment records;
- master budget and project cost reports;
- detailed accounting reports, including direct and indirect costs;
- master schedule and variance reports;
- relevant financial records and transaction support, such as the general ledger;
- list of individuals approved to sign contracts or approve invoices;
- lien releases;
- proof of insurance;
- performance or payment bonds;
- project management plan;
- organization chart and staffing plan;
- closeout documentation, including warranties, as-built drawings, and operation manuals; and
- monthly narrative status reports.

The audit will also require participation on the owner's side, with requests for such documentation as the following.

- executive- or board-level authorization for capital project;
- cash flow analysis;
- corporate request for and approval of funding;
- list of individuals approved to issue contracts or approve payment applications;
- correspondence;
- purchasing files;
- presentations and reporting to stakeholders, including annual reports; and
- policies and procedures.

The auditors need to quickly become acquainted with the history of the project, the roles and responsibilities of the project team, and project risks. This is most easily accomplished by reviewing the monthly narrative status reports for the project, and conducting interviews with members of the owner and contractor project team.

Key project team members, such as the project executive, project manager, project controls, purchasing, contracting, and finance, can expect to answer questions about existing policies and procedures, gaps and challenges, project cost and schedule status, lessons learned, successes and failures.

Audit testing represents the bulk of the audit work plan. A sampling will be taken of timesheets, purchase orders, contracts and subcontracts, general ledger charges, payment applications and invoices, and supporting documentation for these items.

"Testing" is a term used to describe the practice of evaluating a discrete set of data by selecting ("sampling") and reviewing only a percentage of that data. There are a number of sampling methods available, but in construction project audits the sampling is often performed on a judgmental, random, or a stratified dollar-unit statistical basis.

The methods are chosen based on the desired objective. Judgmental sampling may be used to determine whether or not policies, procedures and controls are being used—however, this method may lead to biased results. The errors found in dollar-unit sampling can be used to project an estimate of reliability. True random

sampling is the most frequently used method of selection because it is easy to apply and its arbitrary nature guarantees impartiality—it is typically used for large populations of data.

The tested sample will be used to ensure that the contractor's payment applications agree with the terms of the contract, verify that items billed on the payment application have been incurred by the contractor, identify non-reimbursable items and duplicate payments, and ensure that project reporting includes all costs incurred by both the contractor and the owner. Labor and material charges will typically be traced back to their origin, such as timesheets, payroll records, subcontractor invoices, and bill of materials.

Failure to provide information, or delays in responsiveness, will prolong the audit and will increase the cost of the audit. However, a dedicated audit team will not allow an uncooperative contractor to affect their scope of work—in fact, upon encountering opposition from those being audited, an audit team will often be motivated to investigate further. When a document cannot be provided promptly, the auditor may assume that the document does not exist and (if there is substantial delay) may further suspect that the document has been created specifically in response to the audit request.

Field observations also contribute to the audit. The auditor may request a tour of the construction site, and will also record their impressions while visiting the construction trailer and offices. Notes on the cohesiveness of the project team, adequacy of document controls, inefficiencies, communication effectiveness, safety issues, and more can be used to develop audit findings and recommendations.

The auditors may also coordinate with and report to various groups, such as the owner's audit committee, facilities planning committee, citizens' oversight committee, or board of trustees.

Audit Findings

When the field work has concluded, the audit findings will be summarized in a report and presented to the client. Some audits will conclude with a closeout meeting, at which the findings and remedies will be discussed and both the

owner and contractor management's responses to the findings can be recorded.

Overcharges and questioned costs will typically be reported as the focus of the findings, along with any additional audit observations about controls and management. However, the auditor may elect not to report some findings if they are determined to be immaterial.

Materiality is a measurement of the impact (or value) of the findings. Information is considered to be material if it has the potential to influence decision-making, or if its omission or misstatement will have an impact on the project cost report or financial report. Clearly, materiality varies directly with the scale of the construction project or program.

The quality and quantity of audit findings is also directly proportional to the level of sophistication of the owner and the contractor. While the focus of the audit may be on overcharges, the auditor often has the construction experience to make suggestions related to project controls and industry best practices.

For example, the owner may lack experience with construction and may have undertaken the building of new facilities in response to current or future business needs. Because the owner may be unfamiliar with project management methods and complicated construction payment applications, and they may lack the staff to adequately support the project and review invoices, they may be completely reliant on the contractor for project management and project controls.

Conversely, the contractor is focused on maximizing profit and using the terms of the contract to their benefit. The owner, therefore, has a high risk of overpayment to the contractor, and scope/cost/schedule overruns due to their dependency on external technical and professional expertise.

The owner may have accepted a contract that was drafted by the contractor; the auditor can help to protect the owner by including in their findings a draft of stronger and clearer language for future contracts, which anticipates and addresses potential problems. The auditor can also help the owner by making recommendations to strengthen controls, and by identifying unallowable or duplicate charges, overcharges, and math errors.

Similarly, if the contractor is providing services for a project which is larger than any that they have previously completed, they run the risk of failing to perform. They may lack strength in scheduling, may be overcommitted and thus unable to deliver, or they may lack sophistication in project management and controls. The auditor can review the contractor's policies and procedures and, as part of their findings, suggest improvements which will increase controls for expenditures, cost and schedule. An analysis of the contractor's organization chart may identify skills gaps which need to be filled. The auditor may offer advice for improvements in monthly reporting, which will enable the owner to have better visibility in areas of cost, schedule and contingency risk.

If the auditor is an independent third party, they will have the ability to speak out about owner and contractor issues. Whereas a project team member's suggestion may be overlooked or ignored, or certain concerns might never be voiced for fear of alienation or repercussions, the auditor's findings are designed to be highly and unavoidably visible at the executive level.

A skilled auditor will use interviews and field observations to identify topics of concern, and will weigh the observations to determine whether the issue is widespread or is that of one isolated individual or department. The auditor will then consider the public or corporate impact of their findings. If the topic is highly political or explosive, the auditor may briefly mention the issue as a finding in the report, and then write a separate and confidential "management letter" to provide clarification and detail.

The audit findings will typically be ranked according to their potential impact or financial exposure, as follows:

- **Very High**—Finding is material to accomplishing project or company objectives, and is serious enough to severely impair the project or cause business disruption if not resolved.
- **High**—Finding deserves attention by management within a specified time period, and is material to accomplishing project or company objectives. While not as urgent as a finding ranked "very high," this finding could disrupt certain business processes.

- **Moderate**—Finding may be material to accomplishing project or company objectives. Corrective action is required, and could result in project cost or schedule impact if left unresolved.
- **Low**—Finding represents a minor risk, and is immaterial to accomplishing project or company objectives but may result in inefficient operations. Resolution of this finding is suggested.

Table 1 provides a list of typical audit findings.

In the report, the auditor will list the findings, and will recommend corresponding corrective actions. Periodic follow-up should be delegated to a responsible party and must be performed to ensure that audit issues have been resolved or that recovery of overcharges has taken place. The follow-up may occur at periodic intervals after the audit has concluded, or may take place immediately prior to the next year's audit.

The Aftermath of the Audit

The effects of the audit will begin to be discernable soon after the report and findings have been submitted and discussed. A ripple of change will typically start at the epicenter of the project, led by management or the project executive.

The findings which represent the greatest risk and impact will often be addressed immediately, with a focus on the recovery of overcharges and negotiation of potential cost reductions. Other findings will typically be resolved in direct proportion to the level of risk and amount of effort required.

Ultimately, the audit will have some detectable positive effect and measurable outcome on the "system," whether that system can be defined as the project, the owner/contractor relationship, or the values and methodologies of the organization. As the findings are resolved and recommendations are implemented, the following results can typically be seen.

- Better enforcement of compliance with existing policies and procedures.
- Revision of policies and procedures to incorporate the owner's values and current (actual) practices by the project team.
- Changes to the project management structure.

Audit Issue	Risk
Construction program was started before budget and schedule were finalized.	Lack of expenditure controls at the start of the project.
Construction program scope clearly exceeds the available funds.	Accountability to voters or funding source, possible legal implications, facilities needs not met.
Funding for construction program was obtained from several different sources.	Failure to accurately track expenditures against funding source, difficulty in identifying key schedule milestones for funding requests.
Owner's purchasing department procures some construction program FF&E and services.	Project controls does not capture owner's expenditures, resulting in understatement of project progress and incorrect cash flow reporting.
Failure to review payment applications and invoices against contract provisions.	Potential overpayment with respect to hourly rates, quantities, reimbursable expenses, scope, and schedule.
Change orders are calculated using unit rates higher than those included in the contract.	Potential overpayment with respect to hourly rates, quantities, reimbursable expenses, scope, and schedule.
Failure to require justification for contingency and allowance expenditures.	Hidden profit.
Failure to require justification for reimbursable expenditures.	Hidden increase to the contractor's fee.
General requirements are included in the schedule of values as direct costs, upon which general conditions and fee are added.	Potential overpayment of general conditions items, and hidden increase to the contractor's fee.
Retention is not held consistently on subcontracts. Program manager time is allocated between projects on a percentage basis, not on actual time incurred.	No financial recourse available for subcontractor nonperformance.
Monthly equipment charge over the course of the project exceeds the Fair Market Value for the equipment.	Understatement / overstatement of actual project costs, lack of an appropriate time reporting system. Potential overpayment for equipment.
Equipment is charged to several projects, instead of being allocated on a percentage basis.	Potential overpayment for equipment.
Fiscal operations has recently implemented a new accounting system.	Lack of policies and procedures for the new system, possible failure to capture expenditures, incorrect cost reporting.

Table 1 – Typical Audit Findings

Audit Issue	Risk
The procurement process is shortchanged by limited advertisement, a succinct supplier list, or a short turnaround time.	Not enough bids to create competition.
Owner does not have a restricted list of individuals who are authorized to sign invoices or contracts.	Lack of expenditure controls.
Labor burden is calculated incorrectly.	Potential overpayment of fringe benefits.
Duplicated charges and math errors.	Potential overpayment for labor, materials, equipment, reimbursables. Hidden profit.
Billing for late fees, failure to give credit for early payment savings.	Potential overpayment. Contractor absolved of responsibility for lateness. Possibility of contractor cash flow issues.
Billing for materials purchased but not installed.	Potential overpayment for materials. Hidden profit.
Failure to give credit for deductive change orders.	Hidden increase to the total contract value.

Table 1 – Typical Audit Findings (Continued)

- Tighter internal controls.
- Strengthening of project controls.
- A reduction in errors and overcharges.
- Improved communication between the owner, contractor, and project team.
- An increase in focus on prevention and early detection of risk.
- Greater visibility of change and trends. And,
- Evolution by the owner, contractor, and project team toward a culture of continuous improvement

While it can be said that the auditor is often the least welcome person in any organization, a distinct change in attitude does occur when the project team perceives and accepts that the previously “unwelcome intrusion” by the auditor has resulted in positive change.

Subsequent audits are often performed more quickly and with measurably less resistance from the project team, which is a result of both greater acceptance by those being audited and the auditor’s level of familiarity with the organization. Team members who have seen positive change occur following an audit are more likely to recommend that audits be conducted on other projects.

Construction projects represent considerable financial risk for both the owner and the contractor. Any reduction of that risk represents cost savings. While a construction project audit may generate measurable cost reductions for the owner through the recovery of overcharges and the discovery of errors, the monetary value of improvements in internal and project controls cannot easily be quantified, if they can be calculated at all.

The primary benefit from audit work is in the effective resolution of the audit findings and implementation of the audit recommendations. Strengthened controls and continuous improvement generate increases in efficiency and profitability over the lifetime of the project and the organization. Because the role of project controls involves educating the project team, managing project cost and schedule, addressing risk and change, and accurately reporting project status, the audit function is an essential part of project controls. ♦

RECOMMENDED READING

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ABOUT THE AUTHOR

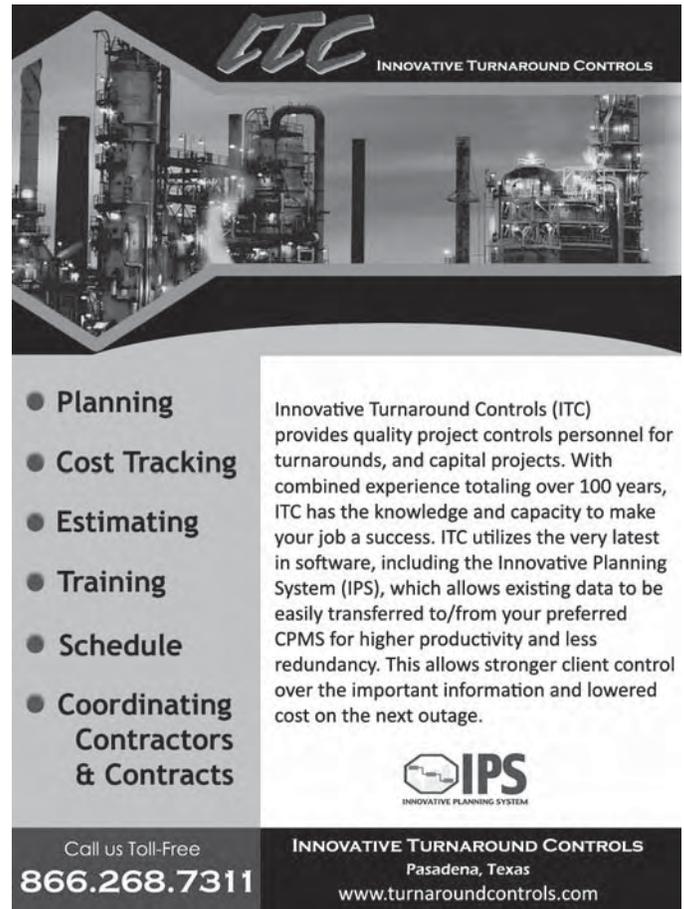
Alexia Nalewaik is Director - Region 6 on the AACE International Board of Directors. She is a senior manager with Moss Adams, LLP, leading the firm’s construction audit and advisory practice. She has over 15

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The 2008 Editorial Calendar:

The monthly themes of each issue of the **Cost Engineering** journal will be the following. However, monthly themes are subject to change without notice based upon production needs.

- January:** Academic/Education;
- February:** Building Information Modeling;
- March:** Claims and Dispute Resolution;
- April:** Cost Estimating and Analysis;
- May:** Management Issues (i.e., focus on facilities management/materials management);
- June:** Annual Meeting Issue;
- July:** Government Public Works;
- August:** High Tech Research (focus on the aerospace industry);
- September:** Annual Meeting follow up issue;
- October:** Planning and Scheduling;
- November:** Project Cost Control (i.e., focus on the transportation industry); and
- December:** Value Improving Practices (oil, gas, and chemical industries)



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