



The Contractor's Guide to Evaluating and Leveraging Cost/Accounting Systems

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>> INTRODUCTION

You think you need a new job cost/accounting system and you don't know where to begin. First you must determine if you are right in your assessment of your system needs. Once that has been established, if you do need a new system, where do you begin? This paper walks you through the process from the initial evaluation to an effective implementation including:

- >> **Do you need a new accounting system**
- >> **What to look for in construction industry software**
- >> **General qualities to consider in software**
- >> **How to shop for software**
- >> **How to implement software**
- >> **How to manage software once it is installed and running**

While this paper has the potential for the great "...for Dummies" book, we will assume some basic knowledge and focus on the most important issues affecting construction companies. This paper is written for non-technical managers within mid-sized construction companies. Those with revenues under \$5 million per year probably manage with a general bookkeeping product while companies that perform several hundred million a year will get value from this document but also have more complex issues than are covered in this document.



>> DO YOU NEED A NEW ACCOUNTING SYSTEM?

If you are taking the time to consider this paper, you may already be asking the question, "Do I need to replace my current accounting software?" If not, maybe someone else in your organization is suggesting that you ask the question. In either case, this is a great opportunity to give serious consideration to changing systems AND upgrading from a product that may not have any functions for contractors to a software suite that is better designed for the construction industry and will allow you to keep pace with current technology.

Is your organization processing many of your standard business functions off-line on spreadsheets, databases, or on other third-party products? If you are, this is an obvious sign that you should consider industry specific software. This happens to many companies after they implement their first automated accounting system and then their business grows. Standard functions are included in generic systems but industry specific functions are not available and are therefore processed off-line. This creates inefficiency as documents are handled several times leaving data integrity in question. Good examples in construction accounting include billing, union payroll reporting, and change order management. Just because your staff looks busy each day, don't assume they are all working efficiently. Stop long enough to really analyze what they are doing and why. Determine if they have the tools to perform the required tasks.

Another indicator common in construction is the inability to meet the demands of your employees and customers. Today's accounting systems should not be considered back-office accounting products removed from operations and customer interaction. The billing formats are often dictated by the customer and forecasting cost at completion or producing change orders are two functions frequently handled by the project manager or superintendent. If you are finding customers and employees frustrated by your systems, consider it an indication of your system's weaknesses not necessarily their unwillingness to cooperate. Look to see if they are working "with" the system or simply working around it.

Today's systems for contractors are intended to maintain the books and reduce risk. This is accomplished by helping contractors better manage costs on projects. There may be a number of reasons why you have difficulty maintaining project budgets and profit margins. Systems can't help you find qualified labor, prevent your customers from making last minute changes, or get your materials on the jobsite quicker. However, the role of today's construction system is to make the person responsible for the project more aware of the issues associated with the job on a more timely basis. For the system to accomplish this, good processes and procedures must be in place. The system should be able to provide daily status reports of cost, budgets, man-hours, committed cost, change orders, billing, cash position, vendor and subcontractor payments, units of production, and forecasted cost. In some respects, this is the most valuable role a system can have in your organization.

A final clue that your current system is not doing the job for you is paper volume. If you are generating multiple copies of each form within your organization, chances are your processes and your systems have not been well synchronized. While the construction industry is not yet to the point of being paperless, software systems have come a long way in helping to reduce the duplicate and triplicate forms of five and ten years ago. Imaging and workflow are two technologies that are beginning to appear in many accounting systems.

In your organization if data and forms are handled and entered into multiple systems, people are using spreadsheet to accommodate a variety of construction specific functions, your customers and employees are frustrated by your system, or you have a mountain of paper being moved around the office and job sites each week, consider it time to investigate your options.

>> WHAT TO LOOK FOR IN CONSTRUCTION INDUSTRY SOFTWARE

Before you begin looking for construction industry accounting software it is important to consider the needs of your organization. You will most likely find a number of functions being performed in your office or on the jobsite that you take for granted yet they should be carefully evaluated when looking for replacement systems. We are going to cover some of those unique functions now. You may not need all these features and you don't want to add unnecessary criteria to your list, as it will drive up the cost and complexity of the systems you have to consider.

RETAINAGE: Retainage is a perfect example of an item that the industry takes for granted in construction and general software developers may not build into their products. Most contractor billings and subcontractor payables have a portion of the amount held until the end of the job. For example, a bill for \$100,000 often has an amount immediately collectable or payable of \$90,000. The \$10,000 difference is a receivable but not until the end of the job or at least until the job is substantially complete. Most contractors keep this amount in a designated account on the balance sheet such as Retainage Receivable or Payable. Retainage is also reported separately on the aging report

so it does not distort the turnover ratios (a ratio determining the average days the receivables take to collect or payables are paid) and does not bring up unnecessary questions or concerns from your banker or bonding agent. If you collect Retainage or have Retainage collected on you, make sure the system accommodates it. Otherwise every billing and/or payable transaction will require two steps instead of one.

SUBCONTRACT MANAGEMENT: If you subcontract work, consider the advantages of an integrated application for managing the subcontract commitment, administrative compliance, and invoice processes. The Subcontract Management application functions like the Purchasing application, it updates committed cost in the Job Cost application and when actual invoices are entered they reduce the committed cost. However, Subcontract Management also manages the administrative compliance items common to many subcontracts. For each contract, the system creates a checklist to track receipt of insurance certificates, a signed contract, bond, and lien waivers among other documents. If these items are not turned in or expire, the system can warn the AP clerk during invoice entry not to pay the invoice. Further, most systems have more extensive change order management functions than a Purchasing application would. Finally, it is frequently the Subcontract Management application that handles requirements like lien waiver production, joint check processing, and back charges.

BILLING: It would be difficult to overstate the importance of billing to any business and the contractor is no exception. Billings for construction companies can vary from the straightforward to the relatively complex. However, it seems as though only the systems designed for construction can begin to handle most requirements. From lump-sum schedule of value billing to cost based and T&M billing, construction has its share of unique processes. For many contractors, this means billing on spreadsheets and then reentering the data into the accounts receivable application. There are several areas that merit consideration within both your billing process as well as the software products you evaluate.

>> First is the billing calculation. This is typically maintained within a record called the contract. This can be based on lump-sum amounts, cost-based line items, T&M line items and for some, unit price line items. For the cost based and T&M line item types there must be a way of associating cost codes in Job Cost to billing items in the Billing application. There also needs to be flexibility in the way in which costs are generated and marked-up. For lump-sum items, the ability to enter a percentage complete (or to be billed) for each item is a must. Related and equally important is the ability to generate a draft invoice, print it without posting, and then making corrections when the customer has revisions to make.

>> Second is the invoice format itself. This can be 70% of the reason a contractor does not generate invoices from the current accounting system. There is in fact nothing wrong with the calculations. It is just that the owner/customer has requested a slightly different format and the system does not accommodate it. Rather than pay for custom modifications to the system, most contractors take the values and enter them on a spreadsheet. A good Billing system will use a report-writing tool for formatting invoices or a mail merge capable program like Word or Excel. This allows the system to generate the values but the user has ultimate flexibility when it comes to placing the fields and boilerplate on the document.

>> Finally, and this is ideal, the Billing application should also be integrated with the Change Order application so changes to the contract are automatically posted when approved by the customer/owner. Without this integration you add an extra manual step in the process and add risk that an increased line item does not get billed. Also, don't forget about the proper handling of retainage as mentioned above.

CHANGE ORDERS: If you deal with change orders, and most contractors do, this is not an "optional" feature for consideration. Like Billing, there are a number of different issues related to this feature. The system must distinguish between owner change orders that would affect the contract in Billing, the budget change order that affects the budget within Job Cost, and the subcontract change order that impacts the subcontractor's contract. In some systems these change orders can be associated if necessary. Some systems are to the point where they can generate the change order document for the owner or subcontractor and most systems handle different statuses of change orders (e.g. pending or approved). But make sure the systems that handle pending change orders allow you to designate how the system posts and report pending change and that it is different than approved change orders. If change orders go through multiple iterations before they are finally approved it is a good idea if the system monitors the changes as they are made and provides a good audit trail.

JOB COST: This application may be described by a number of different names but there is basic functionality that must be included to be adequate for today's contractor. Most software applications designed for construction today can handle budgeted, committed, and actual cost by job, phase, cost code and cost type. Next on the list is the ability to maintain and report both the original budget as well as the revised budget, the latter being the combination of the original budget with any approved change orders. Of great importance and somewhat subjective is the forecasting capability. For any contractor performing contracts that extend beyond a month or so, they will want the ability the ability for the project manager to forecast the cost completed and report it comparatively with the revised budget. Better systems will actually generate an estimated cost at completion based on actual cost to date and progress reported to date. The obvious risk with this calculation is that it assumes a linear progression and often times that does not represent the probable end result. Therefore, the system should provide for a computer-generated forecast and then allow for a project manager's override.

It is also important that you pay attention to the way data can be displayed and reported. Better systems provide for some form of "drill down" capability into job cost records from summary data all the way to the individual transaction. Also important is a specific job cost report writing tool or, at a minimum, a report writing tool that can work with job cost data in addition to other data in the system. Also, make sure that any calculations you need such as productivity and unit cost are available through standard reports and inquiries.

REVENUE RECOGNITION: Revenue recognition methods probably differ in each industry. In construction it is fairly straightforward. However, the way systems handle the calculation and subsequent journal entry can vary. Ideally, for companies using the percentage of completion method, the job cost system will compare the cost to date for a job against the estimated cost at completion in order to get a percent complete. The percent complete should then be applied against the Revised Contract amount in order to get the amount of revenue earned. If revenue was already booked when billing was done, the system should either make an adjusting entry for over/under billings or at least suggest an amount for posting.

MULTI-STATE LABOR: While this may sound rather simple, many systems designed for other industries do not anticipate the problems associated with having employees that work in multiple States in a single week. This can have both union, unemployment, and state withholding ramifications that a Payroll application should accommodate. Make sure you clearly understand your requirements in this area before evaluating the alternative Payroll systems.

CERTIFIED PAYROLL REPORTING: For contractors doing public work, this is an all too familiar requirement. This report must be available from the Payroll application and report hours worked by employee and labor classification per day for any jobs that have federal funding. This function is improved if the Project masterfile in Job Cost can be flagged as a job requiring certified payroll and then warn the operator if he or she is entering time in Payroll for a job that requires daily time entry. Some systems actually allow the user to go back to a job that was originally thought to be a non-certified job and change it to be a certified payroll job, thus allowing the user to generate all the certified payroll reports retroactively.

UNION PAYROLL: If you are signatory to any bargaining groups, make absolutely sure the Payroll application can handle the benefit and deduction calculations, overtime rules, and monthly reporting of the various unions and locals. Further, make sure the wage rates, benefits, and overtime rules can be set by union, craft and class. If you frequently receive your bargaining agreements (with rates) retroactively dated, a nice feature to have is the ability to enter in the new rates, by craft and class, and have the Payroll application handle the retroactive calculations, employee payment, and proper reporting. Another anomaly in construction industry occurs when a union worker from one local works in both his home local and an outside local in the same week. The payroll must properly calculate the home benefits as well as the away union's benefits and deductions. As arcane as these situations may seem, they are the functions you want to test (if you need them) when evaluating new software solutions.

Of a more general nature, but nearly one of the most important factors when consider a new software product, is the degree of flexibility. Software products come in many shapes and sizes but flexibility is one of the characteristics that defines them quite well and is an important factor for anyone considering changing systems. Flexibility or tailorability indicates the degree to which the system can be molded or adapted to meet the requirements of the organization. This is achieved through a number of features within the software including **1) user-defined fields and tables, 2) report writers, 3) screen painters 4) and configuration options.** Rather than spend considerable time describing each of these in detail, suffice it to say that these aspects of the software provide both an advantage and a drawback. If your organization has complex requirements or unique reporting requirements, a flexible system that can be adapted to these needs is important. You just have to be prepared to learn the product at a deeper level so you can make the changes to the screens, reports, and processing options as you wish. However, if you are looking for a solution that can be installed and running within minutes or at least a few hours, with minimal training, a highly flexible product may not meet your expectations.

>> HOW TO SHOP FOR SOFTWARE

Shopping for software is never easy especially if you don't do it on a regular basis. That, coupled with the importance of the decision, can make the evaluation that much more stressful. But by following a few important steps along the way you can reduce the risk considerably and increase the chances of a successful selection and implementation.

Begin with a thorough understanding of your requirements. Without that knowledge it will be difficult if not impossible to differentiate one product from another.

DEMONSTRATION PHASE: At some point you will want to look at the software product. The demonstration phase can be done on-line (sometimes called a web demo) or in person. Most products these days begin with a web demo but are ultimately sold through an on-site demo. There are a couple of key things to remember about demonstrations. Have a demonstration agenda clearly defined in advance and provide it to the vendor/dealer. In the absence of a good demonstration script (detail listing of what features you want demonstrated), the vendor will present all of the truly good qualities of the product and could forget to remind you of some of the drawbacks of the system (and all systems have some drawbacks). The good qualities may include many features you do not need and some of the ones you need may not be demonstrated, leaving you with little knowledge as to how or if the feature operates. It also makes it difficult to compare systems if each one is presenting something different. The author recommends not viewing more than two or three products. If you are considering more products, use broader criteria to develop a short list of vendors before proceeding to the demonstration phase. Make sure you bring personnel from within your office into the presentation at the appropriate times (e.g. the payroll clerk should look at each system's Payroll application). They are better able to differentiate products since they are closer to the details and it also helps to build a decision buy-in from them. Finally, take good notes during the demonstrations. The facts and features are presented quickly and are numerous. By the end of two or three products it will be difficult to remember which product did what without good notes.

REFERENCE CALLING: Call all references for the final vendor candidate. References are too often an overlooked resource for candid feedback on both software and vendor. Try to get the names and numbers of a few users of the system who are not on the vendor's reference list. This could provide you with a more balanced and objective perspective. Remember though, not all bad references are the result of the vendor or the software. Sometimes a company is not prepared to implement or use the system they purchase, and lay the blame on the vendor and/or product.

CONSIDER VENDOR STABILITY: The pace of change in technology and the competitive nature of the software industry has made for many marginally profitable companies. The construction industry has not enjoyed many well-capitalized software developers over the years either. The net result of this situation is that it is important to know the financial position and performance of the vendor you are considering. While bigger is not always better, there is a point at which the vendor's long-term viability is uncertain. This is a consideration not only of risk prevention (i.e. will they be in business next year) but also of performance (i.e. will the vendor be able to invest in their product at a rate that keeps them competitive and you current).

EVALUATING TECHNOLOGY: The old mantra used to be "functionality first, then technology". While this remains true to a large extent, technology cannot be completely ignored. Here's why: While all vendors work hard on developing the best software solutions for their customers, they don't all go about it in the same way. Some prefer to build considerable functionality within the product and provide nearly all of the applications and tools you need directly such as tools for report writing, interface building, and screen design. Others have decided that they cannot possibly meet all requirements well themselves and have decided to focus on core functionality while leveraging the outside development community. In other words, some developers will work on Payroll and Job Cost while leaving payroll tax tables to Vertex and report writing tools to Seagate's Crystal. It is good to know how your chosen software vendor balances internal development with leveraging third-party tools. This same argument extends to trying to keep pace with emerging technologies such as wireless, web, and data mining. During your interview, ask what percent of the R&D is focused on specific functionality and application development versus exploring emerging technologies.

KNOW WHAT YOU NEED: The most frequent basis for software licensing is the number of concurrent users. Sometimes this is a direct correlation to the number of concurrent users of your current system and sometimes it is not. Assuming you are moving to a better system, possibly with more applications, the number of users of the system could increase. Balancing that out the other way is the expected improvement in efficiency could result in users being on the system for less time. Also, when you negotiate your agreement, secure your pricing for your upper end requirements. This way, if you add five or ten concurrent users within a year or two, you can get the advantage of the pricing you negotiated.

>> HOW TO IMPLEMENT SOFTWARE

Now the real work begins. Not to diminish the importance of the Selection phase, but if you have done your homework during selection, any of the top system could be made to work. The implementation is where you ultimately determine the success of your choice and how it works in your organization. While some of the setup and testing can be complex and the technical requirements are by no means getting simpler, there are a few steps that can really enhance the implementation process.

PLAN YOUR IMPLEMENTATION: The final stage of the selection or the first phase of the implement is planning. If you or the vendor are not prepared for this step, simply put the project on-hold and come back to it when you are. This is not optional. There are too many steps and too many people involved in a typical implementation to simply try and do it from a checklist. Planning involves agreeing on the approach, setting objectives, assigning responsibility, identifying potential risks, setting a schedule and budget, and deciding what to do about data conversion. Make sure you allow adequate time to implement your system. A successful implementation is more important than a fixed "go live" date. Employees need to have sufficient time to learn a new system while performing their daily tasks. Training and adequate time for the implementation will help reduce the stress this significant change will place on the organization.

INSTALL HARDWARE AND SOFTWARE: This is typically done by the vendor/dealer or can be done in-house with their supervision. It is important that this step be done by qualified personnel who understand the operating systems, databases, networks, communication requirements, and various system settings of the new software programs.

TRAINING: Once the plan is complete and the software is installed, the training of the team leaders can begin. Team leaders are generally responsible for a module, such as Payroll, Billing or General Ledger. Team leader training includes detailed knowledge on all of the setup options, job costing structure, payroll options, etc.

DESIGN: This is a period of contemplation about how you want the software to work within your business. This includes a focus on your key business process and requirements.

SETUP: This step is when finger is laid to keyboard for the purpose of setting the various options within the software to conform to your design.

TESTING: During Testing, various transactions, sometimes called scripts, are processed in a mock environment for purposes of ensuring that the system has not only been set up correctly but performs to your expectations. Testing includes testing the modules separately and in an integrated mode, such as payroll transactions flowing to job cost and general ledger. The testing phase should determine if the scheduled go-live date is feasible.

CONVERSION: Data conversion is another topic worthy of several pages but shall be given brief coverage here. It is common to want all of the data from your existing system imported or entered into the new system. The process by which this is accomplished is called data conversion and can either be done electronically or manually. A number of decisions must be made that involve time and expense including, how much history to bring over and whether or not to "scrub" the data, clean up erroneous data, and get it to conform to the new system's data structures. If the data is to be converted electronically, it is necessary to test the conversion program and/or process a few times before it is done the final time into the live system.

DOCUMENTATION: While all systems come with plenty of technical and system documentation, thick manuals or CD's describing every nuance of the software, they are never written to reflect your processes and procedures. This is the function of "user documentation". This can be accomplished briefly within a few pages per process and should succinctly describe a given process on the new system, for example entering A/P invoices for payment. This provides a great training tool for end-users as well as on-going training programs. This ensures continuity when entering data as all employees are learning the same procedures.

>> HOW TO MANAGE SOFTWARE ONCE IT IS INSTALLED AND RUNNING

Once the system has been carefully chosen and methodically implemented, it is necessary to manage the system (all systems really) within the organization to ensure proper use and continuing value. This is a neglected step in many organizations. Here are a few ideas on how to properly manage your systems on an on-going basis.

APPLICATION LEADERS: A good qualified person should be responsible for each application area. This person is sometimes called a "super user" because they know more about the system than the average user and have more responsibility for its use in the organization. They are responsible for training new people, maintaining documentation, and learning new features and processes when the system is updated.

STEERING COMMITTEE: One of the organization's biggest challenges when it comes to systems management is identifying all of the requirements across the company, evaluating them fairly, and then balancing priorities so the most important initiatives get the resources first. This is difficult to do on a departmental basis and is better accomplished by a cross-functional team of people from throughout the organization who can represent the best interests of their department and the broader interests of the company. The committee can be anywhere from three to five people and should meet monthly or every six weeks to review the status of various IT projects and the overall use of technology.

ADVANCED TRAINING: Once companies have a system up and running they are usually quite relieved and eager to get back to "doing business" or their "full-time job". This often results in systems that stagnate after the initial go-live period. For best results, the vendor or dealer should be brought back in after the organization has been on the system for four to six months in order to evaluate its use and to provide advanced training. This can result in a fifty percent improvement in the use of the system over what is achieved during the initial implementation. Construction companies today must take a proactive position when it comes to managing their systems and technology. Hardware and software does not manage itself and many of the users need direction and leadership

>> CLOSING

In the author's fifteen years of working with contractors and their systems, he would say that it is rare for a company to overspend on software but, unfortunately, is more common to underspend on implementation and training. In general, if you are a growing construction business, you should give careful consideration to software systems that are designed for your business, make sure your employees have adequate training, and allow sufficient budget and time for the implementation. You will spend far more over the years in inefficiency if you have a system that does not handle the specific needs of a contractor or you have one that is implemented poorly. Careful work through the system selection, implementation and on-going management will ensure you have the tools to effectively manage your projects and the growth of your construction company.

>> ABOUT BURGER CONSULTING GROUP

Christian Burger is principal of the Burger Consulting Group, Inc., a consulting firm based in Wheaton, Illinois dedicated to the information systems needs of the construction industry. Christian has worked with contractors throughout North America for the last sixteen years. He started his career in construction at FMI as a senior systems consultant. After eight years, Christian went to work as a Client Manager for J. D. Edwards & Company. In July of 1996, Christian launched the Burger Consulting Group.

Christian's experience has provided him a close working relationship with the software vendor community, which serves the construction industry. It has also allowed him to see the organizational dynamics involved in automating a construction business. Several of Christian's articles on automation in the construction industry have been published by FMI's Contractor Management Journal and CFMA's Building Profits.

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