

Mechanical Estimating in the 21st Century

Computerized Mechanical Estimating

Introduction

Estimating software designed specifically for the P-H-C industry has never been more plentiful, flexible, and powerful. Firms that use these powerful new computerized estimating tools to their fullest extent will undoubtedly become more in tune with the costs to perform their specific type of work and thus become more selective and profitable.

Evaluating the Company's Estimating Process

A detailed evaluation of the company's estimating process and its interaction with the project management and accounting processes of the company must be completed prior to the acquisition of a computerized estimating system. Upon completion of a *full-blown* estimating process evaluation, it is possible that a company may find that purchasing a computerized estimating system will not produce improvement. Contractors often look for quick bandages for their estimating illnesses rather than completing a thorough process evaluation to discover the cure. There are many computerized estimating systems which were purchased without justification, and are now sitting on an estimator's desk or shelf collecting dust.

To prevent the unwarranted purchase of a computerized estimating system, or to ensure the successful implementation of a justifiably purchased system, the following steps should be followed:

1. Evaluate all aspects of the estimating process. Involve the entire estimating staff to prepare a flowchart which details the estimating process. Prepare a list of responsibilities and duties for all personnel involved with the estimating process. Buy-in and commitment for the implementation of methods for improvement must begin with this step and continue throughout the entire evaluation and decision-making process.
2. Identify specific needs and requirements of the process. What specific labor, geographic, competitive, customer, and legislative, etc., requirements restrict the operation of your estimating process?
3. Identify the areas of strength and weakness in the estimating process. What works well and in what areas do you find constant struggle and error? What areas must *not* be changed to maintain current successes?
4. Identify interaction requirements with accounting and project management processes. What interaction must occur between the estimating process and scheduling, submittals, fabrication, purchasing, payroll, accounts payable, etc.?
5. Identify the company's present annual cost to estimate work. What are the total annual costs of office space, personnel, telephone, fax, copying, etc., required to provide all estimating?
6. Estimate the financial rate of return if computerized estimating is used. What will it cost to implement and continue the improvement process? Identify all costs such as software, support, hardware, training, new personnel, etc. Is there a payback? If there is not, acquiring computerized estimating is a poor investment decision.
7. Find the right tools to improve and streamline the company's estimating process. Computerized estimating may only be a partial solution. Other resources may be required to improve the process.

8. Acquire the commitment for successful implementation of improvement methods from everyone involved in the estimating process. *Acquiring every company member's commitment to implement improvement methods* must begin with Step No. 1 and continue throughout all of the Steps of the entire improvement process. Commitment and buy-in of all parties of the evaluation and decision-making processes are key.

A computerized estimating system is only worthwhile if it contributes to the company's profitability!

Good businesspersons make investment decisions based primarily on the potential rate of return. Therefore, when evaluating whether or not to invest in computerized estimating, the potential rate of return must be carefully analyzed. Just as one would analyze whether or not a required rate of return could be realized on hiring a new estimator, the decision to acquire computer estimating must also be analyzed. The problem, however, that most contractors encounter is that they have a great deal of experience with the decision-making process for hiring another estimator, but very little, or no, experience in the process of acquiring a computer estimating system.

The collection of information to make the investment decision is long and tedious. The place to begin is to contact respectable competitors in your area or peer contractors who use computer estimating systems to inquire how computerized estimating has affected their bottom line. Many contractors are hesitant to contact their competition. However, contractors enjoy showing off their new *toys* and would more than likely be glad to discuss their company's system and their experiences with computerized estimating affect on their bottom line.

The *good* reasons and the *bad* reasons to acquire computerized estimating.

There are *good* and *bad* reasons for acquiring and using computerized estimating. Often, contractors plunge into substantial financial commitments for computerized estimating before properly identifying why they are plunging.

The *Good* Reasons for *acquiring and using computerized estimating* are because computerized estimating will:

1. Reduce takeoff time and allow more time to estimate.
2. Reduce math errors. Computers don't make math errors.
3. Provide better *what if* capability.
4. Allow the company to quote more work, increasing hits.
5. Be easier to establish consistency and standardization.
6. Provide better documentation.
7. Provide a valuable tool for project management.

Provide a template and system for collection and evaluation of historical cost data.

The *Bad* Reasons for *acquiring and using computerized estimating* are because:

1. The competition is using it.
2. My friends are using it.
3. It impresses owners and others.
4. It is the *in* thing.
5. All *good* and *modernized* contractors use it.
6. It justifies the purchase of all these computers.
7. It is the answer to all of our estimating problems.

What are the advantages and disadvantages of using computerized estimating?

Just as there are many *good* and *bad* reasons to *acquire and use computerized estimating*, there are numerous *advantages* and *disadvantages* as well.

The advantages of *acquiring and using computerized estimating* are:

1. Rapid quantity takeoff
2. No math errors (computers do not make math errors)
3. Consistency in estimating procedures
4. Control and template provisions for collection and evaluation of historical data
5. Easy to incorporate, document, and account for changes, addenda, and alternates
6. Labor and material cost data is more manageable and easier to update
7. Greater accuracy of takeoff
8. Fewer omissions of byproducts such as solder, welding rod, gases, etc.
9. Takeoff and the estimating process organized
10. Better and more legible system of estimate documentation

The disadvantages of *acquiring and using computerized estimating* are:

1. Requires a great deal of training which is expensive and disruptive to day-to-day operations
2. Expensive to maintain hardware and software (what is purchased today will be outdated tomorrow)
3. Upsets those who are not *computer-friendly*
4. Requires a huge initial investment in software, training, and hardware
5. Requires that managers also be knowledgeable about computers

Food for thought before purchasing a computerized estimating system-- Implications of the decision to use computerized estimating

The decision to acquire computer estimating can have many positive or negative long-term effects on a company's day-to-day operation and its profitability. As a result, contractors and their staffs must ponder several questions before proceeding with the acquisition of computerized estimating.

Questions the company and its key employees must ask are:

1. Have we evaluated our company's estimating, accounting, and project management processes thoroughly enough to identify specific needs, strengths, weaknesses, problems, and compatibility requirements relative to computerization?
2. Have we considered our future growth and our needs for the next year? For the next three years? For the next five years?
3. Have we considered the time and expense required for the continuous computer training of our employees?
4. Have we considered the value and effectiveness of our computerized estimating system if the software company folds or refuses to provide customer support? Have we properly pre-qualified the vendor?

5. Are we prepared to invest \$5,000 to \$100,000 on an estimating system? (The decision to use computerized estimating is an expensive and long-term investment in software, hardware, and personnel training, and **must be justified by an acceptable rate of return**. Computerized estimating can cost the company up to \$20,000 for software and equipment alone for the first station.)
6. How will we handle the initial training and continued training of personnel?
7. How many stations do we need today? For the next year? For the next three years? For the next five years?
8. How will we handle key estimators who refuse to use the computer system?
9. Will our estimators be willing to learn and change the way they estimate? (Without their buy-in and commitment, failure is imminent.)
10. Who will be responsible for database maintenance and software updates?
11. Who will be responsible for material pricing updates and revisions?
12. Will we need additional personnel? Will we need less personnel?
13. Which software best meets our specific needs?
14. Who are the good guys and the bad guys? (The good guys don't always wear the white hats. Talk to your peers and competitors who've been using computerized estimating for several years. They will be more than happy to provide you with their opinions regarding good and bad computerized estimating software.)
15. What kind of hardware will be required to operate the software? Will we need to purchase new computers or are our old machines acceptable?

Computerized estimating as a tool for project management

The value of a computerized estimating system doesn't stop at the estimating/bidding stage of a project. Computerized estimating is a valuable tool for project management. The computer estimating system provides, often with the click of a mouse, an easy method of performing many time-consuming and complex project management operations.

Why is Computerized Estimating a Great Project Management Tool?

Computerized estimating is a great project management tool because it:

1. Easily allows for labor labor-hour breakdown and tracking.
2. Allows for detailed feedback and historical data collection and evaluation.
3. Allows the project management team to perform *what if* scenarios on material selection resulting in an instant view of the impact on the overall project.
4. Provides constancy among estimators causing the estimating-feedback process to be clearer and cleaner.
5. Provides easy and accurate breakdown of the estimate for billing purposes.
6. Provides easy and accurate breakdown of estimated costs for the accounting cost breakdown.
7. Provides a professional-looking and credible tool for estimating and justifying change orders.

Avoid slick salespersons

Companies must avoid *slick salespersons* selling *unbelievably fast and infinitely flexible and adaptable computerized systems which will fit any company with any need and save them millions of dollars overnight*. Most slick salespersons have their *state-of the-art* laptop computers loaded with sample estimates which make the estimating process appear much more rapid than it actually is. The salespersons click on a few items, run a report, and tell you how *it's just that easy* and convince you that a project can be completely estimated in just a few additional minutes. Don't believe it! It is never that easy or quick. One does not buy a vacuum cleaner just because the salesperson demonstrates that it can pick up a bowling ball, since it is well known that the vacuum cleaner will never work as well as the demonstration model.

Instead, companies must spend the time to check the system. Obtain references regarding the software company's satisfied customers. P-H-C contractors should ensure that the references provided are by P-H-C contractors (software that is great for a drywall contractor doesn't make it great for a plumbing contractor).