

9.1 Introduction

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Previous chapters have focused on concepts related to manual estimating. This chapter will give you an overview of how to use these same methods along with technology to become a better estimator.

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Remember, software does have its limits and cannot replace your judgment, experience, or knowledge of the type of electrical installation you are estimating. We cover:

- 9.2 Estimating Software
- 9.3 Backup System
- 9.4 Can I Afford It?
- 9.5 Material Pricing Services

9.2 Estimating Software

There are a number of things to consider when learning about estimating software. Most of these topics are relevant to every situation, so take your time as you review each of the following items and make sure you are honest with yourself about what you really need.

Selection

Creating an accurate estimate requires great attention to detail and a specific set of tasks to be completed in order. The key to success in software-based estimating is taking the time to select software that meets your needs.

You have two basic choices when selecting estimating software: a spreadsheet or a software suite.

Spreadsheets

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Spreadsheets are appropriate if you don't bid on larger jobs. They have been used for unit pricing, change orders, and simple jobs for years and may be just what you need.

Be careful, while they are an excellent solution for small jobs, don't try to get into the software business. You wouldn't send a motor and pulleys to a jobsite and tell the foreman to build a wire puller, so don't do it with estimating software.

He may get it done, but does it make economic sense? Such an approach will ultimately cost you more than what you will spend by investing in the right software package.

The spreadsheet method can become overwhelmingly complex as you try to scale upward. With an estimating software package, you have many advantages over the homegrown spreadsheet approach. To see these advantages, ask an estimating sales representative for a demonstration and a trial of their product.

Set Up and Training

Once you have selected a software and before you start entering data, you need to learn to use it! Training can require hours to days, so take the time to carefully select the right software and the right software vendor to partner with.

Regardless of how well estimating software is designed, do not expect optimum results without complete training. Professional training is best done away from the office. Attempting to have training in your office during business hours is usually a fiasco due to interruptions from other employees, phone calls, and unexpected visitors.

Be prepared to devote serious time to learning how to use this new tool. It will be extremely difficult to learn new software at the same time as you are trying to estimate multiple projects.

Instead, try to devote extra hours of training after work or on the weekends. The more time you put into using the program, the faster you will master it.

During your negotiations with the software vendor, ask if they will provide the training necessary at no additional cost. Some will, others will not—but it never hurts to ask!

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Word of (aution: If you attempt to use your software without proper training, you may never learn all of the valuable features that are designed within the program. Worse, you are likely to set things up in ways that will work against you, and probably establish bad practices from the outset. Avoid those problems by knowing what you are doing *before* you get knee deep into using this new tool.

This is a critical component of making money. Don't take any chances.

Technical Support

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Software is not a one-time expense; it carries a continuous cost for annual support. Be sure you can count on long-term service from the company and that they will give you close personal attention.

Verify the costs for customer support and the hours they are available for phone and/or e-mail support. If you are going to have multiple systems, or have a multi-user network version, find out if it will be a single location or "per seat" annual fee. These fees and services can cost as much as a single-user license but can pay for themselves over the course of a year—especially when a technician helps you restore a job file an hour before a bid is due!

Database

A standard computer-assisted estimating system requires the estimator to take the time to learn how it works and requires effort to build the right items and assemblies in the database.

The additional information required by computer-assisted estimating systems considers the type of construction. Conversely, the manual-counting method uses an accepted figure regardless of

the construction type. However, once an assembly is built, it can be used repeatedly (as long as prices are updated), and this will speed up the estimating process.

Most systems will have a database of parts and assemblies included in the software product, but someone must take time to verify the assemblies, material prices, and labor units. Once verified, a well set up database can increase the speed and accuracy of the takeoff.

Someone must assign the proper breakout or section of the bid prior to entering data. A "count entry" function requires typing in and/or clicking a button for the correct value. This can be more work than handwriting a symbol or note, and then placing a figure underneath it.

Takeoffs

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Some estimators will still use the manual takeoff to a paper system, and then enter the information into the computer. Since computerbased estimating shares most of the takeoff steps with manual estimating, this method works well.

Other estimators will take advantage of on-screen-takeoff and store the digital plans for future reference. Most computer-based estimating supports all three types of takeoffs in some form:

- Manual Takeoff
- Direct Takeoff
- Automatic On-Screen Takeoff (OST)

Time Savings

The amount of time saved depends on the software, estimator, and complexity of the jobs being estimated. As the estimator becomes more familiar with the system, efficiency improves, and the time to do a given task decreases. The more complicated the job, the more the software can save you time by removing grunt work.

Improved Accuracy

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The manual method requires a detailed write-up and expansion of the counted items. For example, a duplex receptacle has at least nine individual components which need to be written down, along with their associated material prices and labor units. Calculate these values against the quantities and enter subtotals for each. After all this, final totals need to be summed up.

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This takes a great deal of time, effort, accuracy, and hand strength. After all this, someone else will need to double-check the extensions for accuracy. Imagine the time required to complete this process on a bid that has three or more bid forms. Worse, imagine what has to be done if something changes or a mistake is found after these final extensions are created.

Manual Extensions							
Item Description	Qty	Cost	Ext Cost	Labor Hours	Ext Hours	Unit	
Metal Boxes 4 × 4" Regular	1	\$47.84	\$0.48	18.00	0.18	100	
Rings, 1-Gang	1	\$39.00	\$0.39	4.50	0.05	100	
EMT Set Screw Connectors 1/2"	2	\$9.43	\$0.19	2.00	0.04	100	
EMT 1/2"	20	\$19.39	\$3.88	2.25	0.45	100	
EMT Set Screw Couplings 1/2"	1	\$9.70	\$0.10	2.00	0.02	100	
EMT Straps 1-Hole ½"	3	\$3.10	\$0.09	2.50	0.08	100	
Switches—15A, 125V, 1-Pole	1	\$58.23	\$0.58	20.00	0.20	100	
Plates, Plastic 1-Gang Switch	1	\$18.88	\$0.19	2.50	0.03	100	
Wire—12 THHN, Copper, 600V	50	\$73.69	\$3.68	4.25	0.21	1,000	
Totals			\$9.58		1.26		

Software can help improve accuracy quite a bit, particularly during the extension phase of your estimates. The computer does the calculations with more accuracy and speed than any human (or even a large group of humans) ever could. If something changes or a mistake is found, it is much easier to make the necessary corrections and redo the extensions.

Remember, a computer does not make mistakes, it does not get tired, it does not forget the data when distractions occur, it does not omit steps in calculations, and it does not make errors in overlooking taxes, overhead, or profit!

Software can help improve accuracy quite a bit, particularly during the extension phase of your estimates. But if you do not enter the data for your estimate accurately, you will not have an accurate bid.

Quality

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If you succeed in accurate count and entry, your estimates should be more complete than any done manually. Computer-based estimates also contain information to increase efficiency and improve profit margins.

Adaptation

Most software will be flexible and adapt to your estimating style, but do not expect it to fit *all* your habits perfectly. You will be required to "tweak" your system to be efficient.

Item Entry and Takeoff

Much like a manual takeoff, an accurate computer-based takeoff relies on a repeatable process that is consistent from start to finish. One advantage of computer-based takeoff is that the software design usually pushes you through the estimating process in a logical sequence.

Once mastered, a direct takeoff on a computer is a huge time-saver. It improves accuracy and reduces your chances of making mistakes in half by eliminating the need to write the count and takeoff information on a spreadsheet.

Bid Analysis

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As you begin to use software to estimate your jobs, make sure that you carefully analyze and check each bid number. You will need to be able to replicate the manual adjustments that you have made to your labor units and add costs, overhead, and profit in the same way you did on the manual estimate that you produce.

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Reduced Risk

Estimating software does not eliminate the need to learn how to estimate, but it can make a good estimator far more effective by eliminating human error. Reduced error results in reduced risk and an opportunity to make more money!

Time Management

We have already discussed that spending money on technology is a way to trade money for more time. A computer does thousands of mathematical computations in a fraction of a second, never makes a mathematical error, never becomes tired or careless, and never forgets. This is a path to recover your most valuable asset-time!

Some functions that are significantly improved by using a computerestimating system include:

- Reduced estimating time and costs
- No errors when manually pricing, laboring, extending, or totaling
- Additional time can be used for bid review or additional estimates
- Highly organized and easily accessible bid and estimate history
- You can spend more time with family or just having fun!

The amount of time saved depends on the software, the estimator, and the complexity of the jobs being estimated. As the estimator becomes more familiar with the system, efficiency improves and the time to do a given task decreases. The more complicated the job, the more the software can save you time by removing grunt work. As a general rule, once you are proficient with the software, you should be able to complete a computerized estimate in 25 percent of the time that it will take you to do one manually.

Material Cost Control

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Once the takeoff is complete and you have entered the quantities, you can easily generate a report of all the material required for the job. You can generate a summary, or a report broken down by job phase or type of materials.

You can then e-mail this to multiple suppliers to obtain competitive prices and fixed delivery dates. You can also share the estimate with a contractor's purchasing and accounting departments.



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Cost tracking and inventory control become much simpler when you use software to generate and control the information. Material prices can be changed easily, quickly, and accurately at the last minute.

You can make information secure and easier to retrieve with various search criteria specific to what you are looking for.

You vastly reduce the investment in office space and filing cabinets, while reducing the fire fuel load that comes with storing large quantities of paper. But what if you do have a fire? A software-based system with remote backup means your information is safely out of harm's way.

A computer-based estimating system also provides for easy accumulation of project history that can be used to evaluate the accuracy of each new estimate.

Management

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If integrated properly with the project management system, estimating software provides the flexibility to track projects in many ways, such

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A Gantt chart is a project management tool used primarily in the planning and scheduling of projects. as by system, floor, building, site, or project phase. A project manager can make a few mouse clicks to update the work breakdown structure, critical path, Gantt chart, and other key project management items in real time.

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It is easy to share information with people in the field. Keeping the field supervisors apprised of the current labor budget, material information,

and daily schedule updates help them complete work on time. The project manager can decide which reports to send out so people in the field are not overwhelmed by information they do not need.

Estimating software can also help supervisors in the field order material and better control its arrival at the jobsite. This reduces handling time, improves inventory control, reduces storage and theft problems, and assists with other issues that stem from inefficient material handling practices.

It is important to be sure an estimate is accurate and error free before using it for project management. Some companies require a re-estimate of a project after it is awarded.

Reduced Overhead

We have discussed the relatively high cost of producing a manual estimate and while this is a cost of doing business, controlling overhead is one of the core principles of making a higher profit.

A computer-based estimating system allows an estimator to bid on more jobs in the same amount of time, reducing estimating costs per bid relative to revenue. Material inventory control improves with accurate and available reports, providing such benefits as reduced costs for storage space and financing. You can also improve billing and expedite collections.

All of this will increase cash flow, which may further reduce your costs of capital and/or allow you to use your capital more effectively.

Confidence

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A computer-assisted estimate provides increased confidence that the bid price is correct. It also provides more consistent and accurate historical data for future jobs of the same type. Tapping even a little of its potential will improve your competitiveness and increase your profit margins.

Purchase Considerations

Although many software vendors present information on the computer screen in a similar manner, you must think about the following during your consideration process:

Usability. Software should be logical, intuitive, simple to use, flexible, and easy to understand. It should provide an on-screen audit trail to review and modify the takeoff at any time.

Flexibility. It should provide the capability of factoring labor and/or material cost for every line of the takeoff to reflect diverse installation conditions. You should be able to view or change anything in the estimate at any point easily and quickly.

Reports. The system should provide a permanent audit trail that tracks the input. When looking at software options, pay close attention to the types of reports it will allow you to generate. You need reports that support your business processes. Determine what kinds of reports you need before you even look at estimating software.

Integration. Integration with your accounting system is important. Consider software that provides seamless integration, so you don't have to double-enter data. **Your Needs.** Are you a small contractor just opening your business, or do you have a large company that has been in business for several years? Some software is more suitable for the former while others are more suitable for the latter. Take this into consideration during your search.

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Remember, you can always move up to a more sophisticated product when sales improve, sometimes with the same vendor. Only buy what you need.

Hardware Considerations

Do not make the mistake of trying to use an old, outdated computer to run new, super-charged software. Doing so will result in frustration and disappointment. Besides that, you will not receive the most from your investment.

How do you know if the hardware is outdated? If you are spending time waiting for the computer instead of getting work done, you need to upgrade.

If the computer is waiting on you instead of the other way around, then the fact that the computer is not very new may not matter. But, if you have an older computer, be sure the software you are considering will work with the operating system it uses.

Stay up to date with your hardware. Computers typically have a higher failure rate after two to three years of use. Purchase something that will handle the software you select without a lot of effort. There's nothing worse than listening to a loud computer fan screaming all day!

The software vendor you select can often suggest a good machine that meets their requirements.



Remember, "Time = Money." If you spend time waiting for the computer instead of working, you need to upgrade.

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It is tempting to save money on estimating software, rejecting anything over a certain price level. This kind of cost savings can actually be expensive in the long run. Instead, determine what your current and anticipated needs are, and then look at all of the software that meets those needs.

You need to consider all of the estimating software products, not just those with the lowest prices. The saying, "you get what you pay for" applies to software, too. If you have been on a jobsite after low-balling competitors have done the work, you understand all too well how this adage applies to electrical work.

Do not make the "low-price blindness" mistake in selecting your software. If it does not meet your needs, then the low-priced purchase is a waste of money.

The high-priced software purchase can also waste money. As you look at an increasing number of bells and whistles, you should evaluate those based on your present and anticipated future needs. Do some math to determine the return on investment of the added cost of an optional feature set or a more robust product.

With vendors that offer multiple versions or levels of estimating software, evaluate whether or not your data can migrate to an upgraded system later on, should you choose to purchase one of the lowerpriced versions.

References

Before buying a computer-based estimating system, ask the vendor for a list of their users, then follow up by calling a few and asking how satisfied they are. Be sure to talk to at least one user who is similar in size to your company and does work similar to yours.

9.3 Backup System

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Do not forget to have a backup system. There are many to choose from, but cloud-based solutions are probably your best bet for all-around ease of use and reliability.

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9.4 Can I Afford It?

In today's world, it is highly unlikely you can be competitive if you estimate without the right software tools. The question is not whether you can afford the right system, but whether you can afford not to have adequate tools for estimating jobs in this competitive environment.

To determine the dollars required in sales to cover the purchase of estimating software, use the following formula:

Sales Increase Required per Year = Software Cost/Gross Profit Percent



Sales Increase to Cover Software Cost Example: How much must sales increase per year to cover the cost of an estimating system, based on the following factors? It includes software, computer, and training—\$6,000; gross profit margin of 40 percent, with expected life of four years.

Sales = Cost per Year/Gross Profit Percent

Cost per Year = \$6,000/4 years Cost per Year = \$1,500

Sales Required per Year = \$1,500/40% Sales Increase Required per Year = \$3,750

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Small Contractor Income Statement Year Ending December 31						
Sales	\$250,000	100% of Sales				
Direct Job Cost						
Labor (4,000 Hrs)	\$80,000					
Material	\$70,000					
Total Direct Cost	\$150,000	60% of Sales				
Gross Profit	\$100,000	40% of Sales				
Overhead Expenses (Administrative Cost)						
Salaries and Commissions	\$15,000					
Advertising	\$5,000					
Auto and Gas	\$10,000					
Benefits	\$20,000					
Interest	\$1,000					
Insurance—Auto, General, Workers' Comp.	\$5,000					
Miscellaneous Expense	\$3,000					
Payroll Taxes	\$8,000					
Rent	\$5,000					
Utilities/Phone	\$3,000					
Total Administrative Expenses (50% of Prime)	\$75,000	30% of Sales				
Net Profit Before Taxes (16.67% of Prime)	\$25,000	10% of Sales				

9.5 Material Pricing Services

To use estimating software most effectively, you need to subscribe to a material pricing service to gain assurance you have the most current material prices. These programs interface with most major estimating software programs and can price almost all the individual material items in the database.

If you decide to use a pricing service:

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• Verify that prices accurately reflect prices where your job is located

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- Research reviews of the companies offering pricing services
- Ask where they obtain their material prices

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- Find out their relationship to the electrical industry
- Get some references

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Keep in mind that pricing services cannot keep up with the constantly changing conduit and wire prices, so you must check the prices for these items for each bid—especially when large quantities are included in the estimate.

Final Thoughts

Just as it takes time for an electrician to become a journeyman and then a master electrician, so it takes time to reach advanced levels of proficiency with estimating software.

How quickly you increase your proficiency depends on how good an estimator you already are and the amount of time you invest in learning the software. If you feel frustrated along the way, just relax and try to think through what the designer intended.

It is important to remember that estimating software is a tool and cannot by itself ensure your success. It allows estimators to improve accuracy, consistency, and speed when preparing estimates.

As you take what you have learned in the last nine chapters to the field and apply it, make sure to find some experienced mentors to give you advice when you approach new types of work and estimating challenges.

If you remember nothing else, make sure you stay away from the bad habit of chasing unprofitable work just so you can win. In the long run your goal is to make money and that should govern your entire estimating process.