Electrical Estimating

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INSIDE REAL-WORLD

Electrical Estimating

ESTICOM

THE

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THE

Introduction

Inside Real-World Electrical Estimating

In the world of competitive electrical bidding, the successful electrical contractor must estimate and submit bids in order to win construction projects and stay in business. This means providing a bid price low enough to win against many competing electrical contractors, while bidding high enough to cover business overhead and make a profit. To be successful, you need to first determine your break even cost to complete the agreed upon electrical scope of work determined by the electrical bid package.

For this to happen, you need to estimate all the direct labor cost, material cost, equipment, and subcontractors while taking into consideration any unusual job conditions or scheduling requirements and any indirect overhead costs required to run your business. This can be challenging if you do not first have an electrical estimating process in place. One that ensures speed, accuracy, and the ability to do so in a repeatable, systematic manner that is consistent from one electrical estimator to the next within your organization.

If you do not have an electrical estimating system in place, putting together an electrical estimate can become very time consuming, resource intensive, and complex. And, this complexity can bring about errors and omissions that lead to lost projects, or worse—winning a bad project where you're in the red before you even start the process. Therefore, as an electrical contractor, it is important to have an all-encompassing estimating system in place. With an organized and detailed system, you ensure your team of electrical estimators can quickly build an accurate estimate with checks and balances. In result, you minimize risk and maximize your chances of success during the electrical estimating process.

The estimating process is just the beginning, once the project is awarded, it requires effective project management to ensure work is completed at or below the budgeted construction costs. The estimated construction costs will serve as a project budget that the project management team will use as a guide during the planning and scheduling phases and during project execution. It's important that the electrical estimate is built in the way that your project management team can easily perform a work breakdown structure in order to build labor and material budgets and schedule resources effectively. It's important to remember, that while effective project management can improve profitability on a well estimated construction project, it cannot overcome an underbid job where the costs were poorly estimated, so make sure you start with a good estimate.

THE

Introduction

In this electrical estimating guide, we will cover 8 key topics, including:

If you're just getting started as an electrical contractor and new to electrical estimating, it is our goal to provide you with a solid foundation to you get up and running. And if you're a seasoned electrical estimator, this guide may simply act as a refresher or you may even learn a few new things along the way.

Let's Get Started →

01

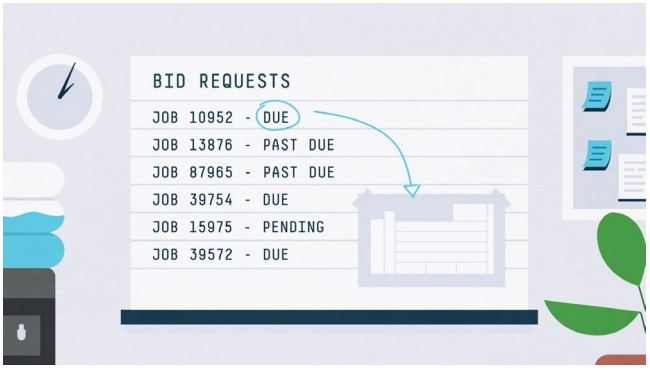
Chapter One

How to Navigate the Electrical Bidding Process

The bidding process for electrical contractors is time-consuming and resource intensive. Many electrical contractors receive an overwhelming number of bid requests from general contractors that they do not have a working relationship with. On one hand, this is great—it creates opportunity to expand your business network and win electrical projects you might not have known about otherwise.

But consider this first, the electrical estimating process can take weeks of hard work for an electrical estimator to estimate a project and submit a bid to a general contractor. Because of this, you need to first consider how likely you are to win and successfully complete an electrical project before you dedicate the time to begin the estimating process and submit a bid price. One best practice in this decision phase is to ask yourself ***"What kind of relationship do I already have with this general contractor?"***

If the answer is that you have a great relationship and work history with them already, there's a higher likelihood of success winning and completing the electrical project successfully, meaning the bidding process is worth your time. If the answer is that you have a nonexistent relationship with the general contractor, you may want to avoid wasting your time creating a bid and move on to your next bid invitation.



Before you begin the estimating process, ask yourself the following questions:

HOW MANY COMPETING ELECTRICAL CONTRACTORS ARE BIDDING THE PROJECT?

WHAT'S MY CONTRACT AWARD PERCENTAGE WITH THIS GENERAL CONTRACTOR?

DO I HAVE ENOUGH TIME TO COMPLETE THE ESTIMATING PROCESS AND SUBMIT A BID BY THE DUE DATE?

As a general rule of thumb, you want to avoid projects with five or more electrical contractors bidding the electrical scope of work. As the number of electrical contractors increase, your chances of winning go down, while the risk of taking a bad project goes up significantly. You wouldn't want to be the low price out of 10 electrical contractors, would you?

Have You Worked with This General Contractor?

Once you go through the time-consuming bidding process, will the general contractor give you a fair shake or is he going to use your number as a check price to negotiate with another electrical contractor?

Assuming you'll get a fair shake at the electrical project, has the general contractor requesting the bid already been awarded the construction project or is he one of three general contractors bidding, meaning your competition just increased threefold?

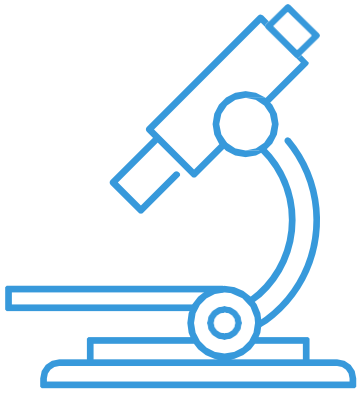
At a minimum, find out what other general contractors are bidding the construction project and submit your number to them as well. Depending on which general contractor you like the best, you can provide your best bid number to help them out. Remember, not all general contractors are the same. Some do not run tight ships when it comes to paying their subcontractors or managing the projects to ensure things run smoothly.

Related Article: Build Profitable Relationships in Construction by Firing Unprofitable Ones

Can I Realistically Handle the Scope of Work?

During the bidding process, it is important to focus on construction projects where you have experience and are confident you can handle the type of work. This will help you reduce the chances of making a mistake and ensure you can complete the electrical job when you are awarded the contract. Your reputation is on the line, meaning this could either lead to more business for you in the future when the project is completed successfully, or tarnish your brand when the project encounters setbacks.

Also consider this: while it can be tempting to jump into other verticals to expand your footprint, there's a learning curve that can be expensive for an electrical contractor. If you do decide to venture into new markets or other types of electrical projects, you should know that there is a time to value factor. In the beginning, your team will be less productive, meaning higher job costs due to the increased project management and job management required to effectively manage the project, increased labor hours, material costs, and higher overhead costs due to lack of experience. In turn, you will be less profitable until you gain experience with the type of work.



How Carefully Did I Review the Bid Documents?

Before deciding to estimate an electrical project, always carefully review the bid documents. This includes division 26 electrical drawings, specifications and any addendum that might have been released, which could depend on the electrical contractors' responsibilities as is generally outlined in the division 1 specifications. This could also include division 27 communication and 28 life safety. You'll also need to review the division 1 general requirements, which outline responsibilities and conditions such as payment procedures, allowances, substitutions, submittal requirements, and completion schedule. Pay close attention to any punitive language, especially as it relates to scheduling and conflict resolution due to errors and omissions. If the contract documents are incomplete, who will take responsibility for the mistake?

Assuming you win the project, is the contract language something you can live with? You want to determine this before you begin the electrical estimating process and allocate too many resources.

Do I Have Time to Accurately Bid the Project?

As a final step, ask yourself: “Do I realistically have time to build an accurate estimate of job costs and submit a bid for this project by the general contractor’s due date? This includes having the man power to perform a quantity takeoff, determine labor cost, material cost, and round up quotes from suppliers and subcontractors that are required to complete the electrical project scope of work.

Hastily bidding a project on a tight deadline can lead to errors and omissions. In a lot of cases, you need to ask why you are receiving a bid request from a general contractor with such a short turnaround time. There’s a good chance your number will be used as a check price to lower a competitor’s number who’ll receive the project if they comply even though you submitted the best bid option for the project.

In the next chapter, we’ll take a close look at the importance of reviewing electrical drawing package and specifications.

Continue to Chapter 2 →

02

Chapter Two

Reviewing Electrical Drawings and Specifications

Today, many electrical contractors find themselves in a constant state of catch up. This can be overwhelming. During the bid process, it's easy to rush and not fully review a complete set of construction drawings and specifications and only look through the electrical drawings and specifications. This results in a lack of proper understanding of the full electrical scope on the project and can be a costly mistake.

Can I Get By Only Reviewing the Electrical Drawing and Division 26 Electrical Specifications?

You can no longer rely on the design team to ensure all the information required to meet the eventual contract requirements have been placed in the Division 26 electrical drawing package. You should review the full set of construction drawings and pay close attention to the architectural, mechanical, communications and life safety to identify responsibilities that might overlap with other trades but fall on the electrical contractor's list of responsibility. Generally, you'll find a contractor responsibility schedule in the Division 1 specifications. You'll also need to fully understand the building's structural details that might not be depicted on the electrical drawings. This includes things like working height and unusual elevations that might affect your costs.

Do you need lifts to perform work in a certain area? Are you responsible for providing the cable tray that is depicted on the communications drawings?

These are common examples, often not found in the electrical drawings. However, the responsibility will lay with you to locate these activities and ensure that you've accounted for them. If you're unsure, submit a request for information (RFI) to get clarification. This is a formal document that is submitted to the general contractor who tracks and forwards to the owner for clarification and then redistributes to all project bidders to ensure everyone is bidding the project apples to apples. Make sure you submit your RFIs by any predetermined deadlines and read through the entire list of questions and answers as they relate to electrical and trades that might affect your scope of work.

When Reviewing the General Conditions, Confirm the Following Details:

- Review the responsibility schedule and confirm, is there any overlay with other divisions that fall under the electrical contractor's scope?
- Are there any alternates?
- What are the project tax requirements?
- Should allowances be included in the bid price?
- Are there special insurance requirements?
- What are the retainage requirements?
- Who furnishes and pays for temporary power?
- Does the project require bid, payment or performance bonds?
- What's the construction schedule and can you meet it?
- Is there owner furnished equipment that you'll be responsible for installing?
- What are the procedures for submitting change orders?
- What's required to close out the project, i.e. as-builts, warranties, commissioning?

When Reviewing the Division 26 Electrical Specifications, Confirm the Following Details:

- What grade of materials should be used, and what specific electrical equipment requirements are there for lighting, power or distribution systems?
- Are there specific electrical installation methodologies to be followed when installing branch lighting, power or distribution systems?
- Determine responsibility of costs. Who's providing the fire alarm, communications cabling, and who provides excavation and backfill, pole bases, equipment pads, and patches and paints?
- Remember, anything you're not clear on will require clarification via request for information (RFI). You need to qualify these in your inclusions/exclusions to avoid any confusion with your bid price.

When There is a Conflict Between the Drawings and Specifications

In many cases, you'll find a conflict between the drawings and the specifications, some examples include an electrical diagram that calls for one grade of wire while the specifications call for another grade of wiring.

This is common and you'll want to find a reference in the specification that clarifies what supersedes the other. Generally, drawings will supersede the specifications about quantity and location, while the specification will supersede the drawings on material type, performance, and quality. Generally, the owner will include a clause that states in the event of a conflict, use the option with the higher quantity and highest quality. This covers the owner but puts you in a position of over bidding the project. In this case, it's best to submit a request for information (RFI) for clarification and always qualify your bid confirming what was included and excluded in your bid price to avoid any confusion.

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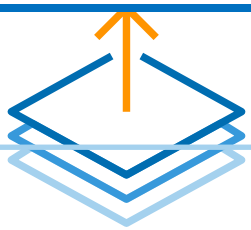
Chapter Three

How to Perform a Quantity Takeoff for Electrical

In order to accurately estimate an electrical project, you need to understand how to perform a construction takeoff, and more specifically, how to establish the full scope of work required by means of a quantity takeoff.

In the last chapter, we reviewed the importance of drawings and specifications. Now you're ready to determine your break even cost to complete that scope of work and fulfill your contractual obligations, should you be awarded the project.

This involves the process of carefully reviewing the drawings outlined previously and performing a construction takeoff as outlined below. If you're new to construction estimating or have followed the "eyeball" method in the past and do not know what exactly an electrical quantity takeoff around construction estimating entails, don't worry—in this chapter we'll tell you what you need to know to perform an accurate takeoff.



The quantity takeoff is the process of breaking down the drawings into predefined tasks or activities and quantifying the number of each based on the plans.

Tasks are actual units of work to be performed, such as “Install commercial grade duplex receptacle,” depicted on the plans using common electrical symbols, and detailed in the plan legend in combination with the specifications of the construction project that are usually provided by a general contractor.

You’ll use these counts and measurements to determine your material quantity and labor units for each task in your material takeoff, which is the starting point to creating an accurate estimate and building a profitable project.

Depending on the tools available, your construction takeoff can be done with a highlighter, hand counter, and digital measuring wheel using the manual takeoff method. Or, you can acquire a cloud-based software product that allows you to quickly bid, win projects, and manage workflow, such as our takeoff software, Esticom.

Either way, you’ll begin by choosing a single task to start with. For example, with a 2’ x 4’ light fixture you'll highlight each light fixture on the drawing while counting with the hand tally. You can go through the plans clockwise or counter clockwise, it doesn’t matter which way, but be consistent and make sure you capture each symbol depicted on the drawing.

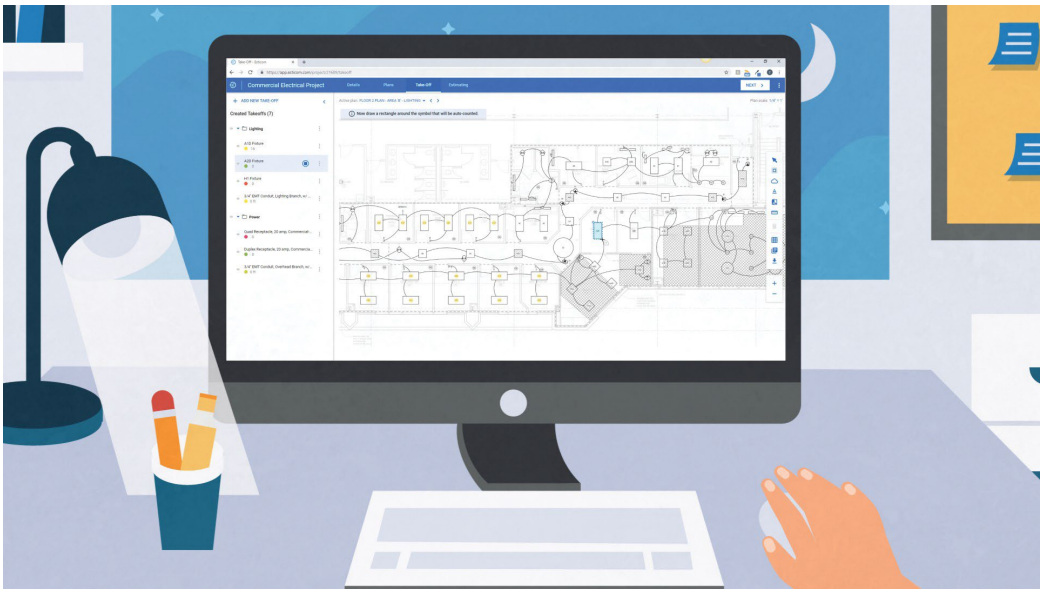
Once you’ve taken off all items for the page, notate the task and quantity clearly on the page and move to your next task until you’ve covered everything on the sheet. Then move to the next sheet in the plan set until you've completed all the quantity takeoffs.

As a best practice, you’ll want to create task totals on each page, and then summarize the totals on a quantity takeoff form, usually in excel format (or the last page of the plans if you’re completing it long hand). One benefit of takeoff software is that it will automatically keep track of your counts and allow you to filter by sheet and summarize the totals. If you're using integrated on-screen takeoff and estimating software that is all in-one like Esticom, you don't have to move quantity takeoff data from takeoff software to an excel spreadsheet and because it’s cloud-based, you can access it anywhere, anytime, from any device. This allows you to complete the cost estimating process in less time.

Common electrical tasks, such as a duplex receptacle, have many parts. This means it's more effective to count items as assemblies versus individual parts and then break down to required parts later when you build a bill of material. For those with estimating software, you can build these assemblies ahead of time to streamline the construction takeoff process and adjust based on project conditions.

Tip from the Pros

Electrical Estimating and Takeoff software can keep track of your counts automatically by performing a digital takeoff and utilizing pre-built assemblies that calculate your material totals, saving you hours of manual calculations. In addition, many takeoff software applications like Esticom have a symbol recognition tool that not only acts as a digital takeoff but will automatically count symbols on a set of plans saving you even more time by reducing the time-consuming process of manually counting each symbol.



For tasks such as conduit runs for branch circuits and feeders, you'll need to capture the linear footage totals using a digital measuring wheel or construction takeoff software with a built-in measuring capability.

It's important that you adjust whatever tool you use for the denoted plan scale; i.e., 1/8" = 1' and confirm it's accurate on a page per page basis as it changes. On "typical drawings" you'll sometimes have multiple scales for the same sheet. The scale denoted on the drawing can be incorrect if the plans were printed in the wrong format, the drawing was scanned, or a multitude of other reasons. Ultimately, it's up to you to confirm the accuracy of the scale and ensure you have accurate takeoff quantities.

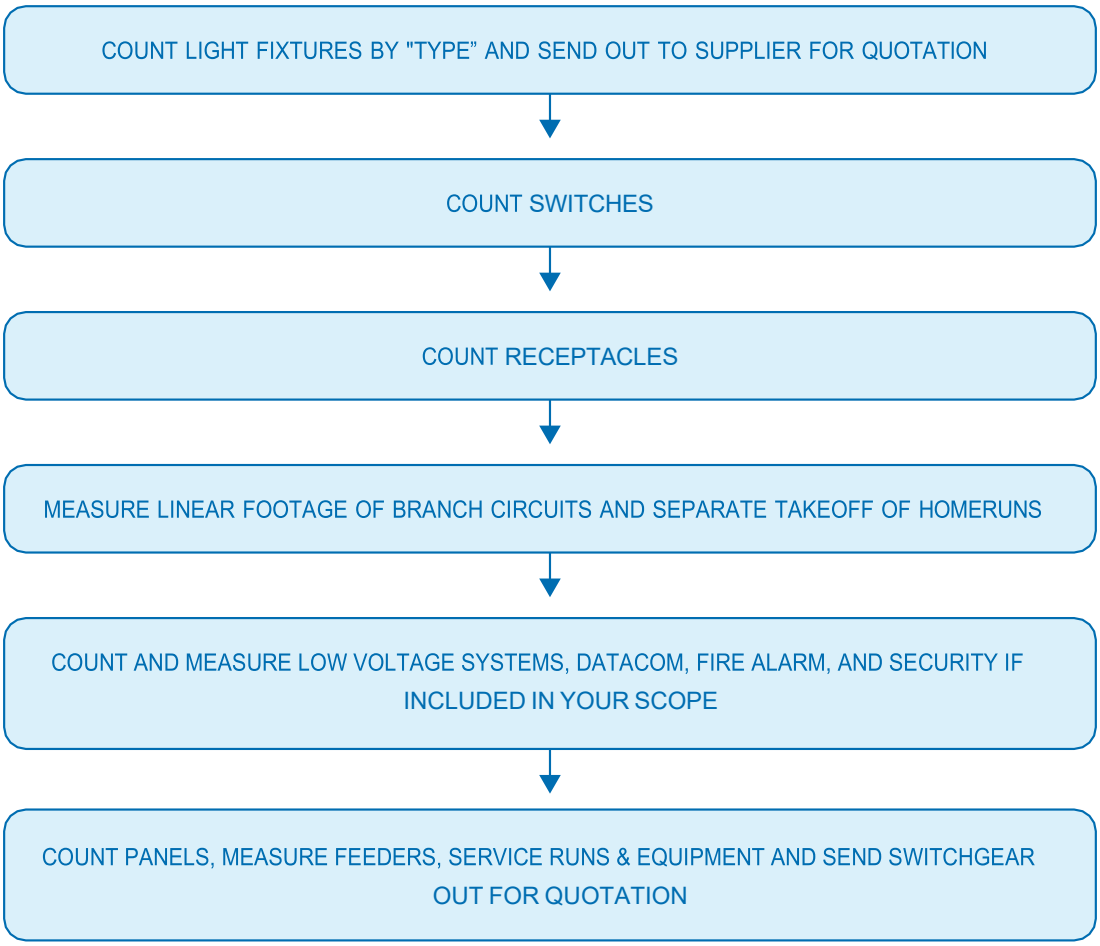
Scaling can be done with your measuring wheel and most construction takeoff software packages by measuring a known distance, such as a doorway, and entering the distance to calibrate the drawing to an accurate scale. It's always a best practice to use the longest distance available and verify horizontally and vertically on the page as the drawings can be skewed.

Start with Lighting

One strategy for starting a quantity takeoff recommends following the same order that the work would progress. However, this is often impractical as it's difficult to lay out items like conduit, wire, etc. without first being familiar with lighting, devices, gear and panel locations.

A better way to start is by beginning with lighting to get familiar with the project. As you perform the counts, you'll inherently review the drawings and gain a better understanding of the layout of floors, sub-systems, conduit pathways, etc.

Find an open work area with plenty of light, a set of highlighters, hand counter and a digital scale master for taking linear measurements. **Locate your plans lighting drawings to start and follow the sequence below:**



Tip from the Pros

It's not required to describe the fixture by manufacturer, catalog numbers, or color. Not only is this time-consuming, the lighting supply firm will do this for you per the plans and specifications. You should identify these per the fixture type; i.e., Type A, Type B, etc. and count quantities of each. Remember, you'll still need to account for labor cost and need to notate the type of fixture.

As an added benefit with electrical estimating: it's common practice to send light fixture counts off to the respective suppliers for project pricing. This can take time and is largely out of your control, so getting your light fixture counts first is a best practice as you get your supplier working on pricing while you finish the rest of your construction takeoff. This usually includes consumables and items that can be priced based on past purchase history.

It's also effective to break out your quantity takeoff by phase. This does a couple of things. First, it makes it easier to spot a mistake. You can look at the tasks in smaller chunks and have someone else double check your counts as you go. Once the project is awarded, this also helps to build a work breakdown structure for project management purposes that you can use for ordering materials, scheduling resources, and creating project budgets for cost control.

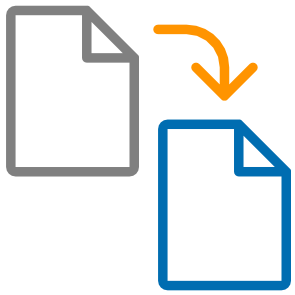
Always Have a Fresh Set of Eyes Double Check Your Construction Takeoff

Before moving to the process of pricing your estimate, we suggest having a counterpart review your counts to make sure you didn't miss anything. A fresh set of eyes always finds a few things you overlooked and can provide some perspective on the installation you might not have considered.

Tip from the Pros

Create a color scheme for each system; i.e., green for lighting fixtures, blue for panels & gear, pink for devices—and make sure your team follows the standard for all projects.

Transfer Your Construction Takeoff Quantities to Estimating



Now that you've completed your construction takeoff and had a counterpart double check your counts, you need to move the quantities to a clean quantity takeoff sheet. Depending on the resources available, this can be a pre-printed quantity takeoff form, an excel spreadsheet, or, if you're using takeoff software, it should push the quantities to an estimating module to begin the rest of the estimating process.

Experience Matters in Construction Takeoffs for Electrical Estimates

The "quantity takeoff" process itself is simple, but it requires a solid understanding of electrical installation methods, codes, and general construction industry experience to understand working heights, elevations, etc. We don't recommend delegating this out to someone with less experience with the belief that they're just "counting" symbols while you double check their work to save time. That is a recipe for disaster.

While inexperienced personnel can surely count symbols on a plan, they will often not understand the difficulty of tasks or how the various systems relate to one another. More importantly, if you delegate the takeoff to someone else, you miss the opportunity to become familiarized with the project, which will lead to errors, omissions, and, ultimately, an unprofitable project.

Now that we've gotten that disclaimer out of the way, let's move on to electrical cost estimate types.

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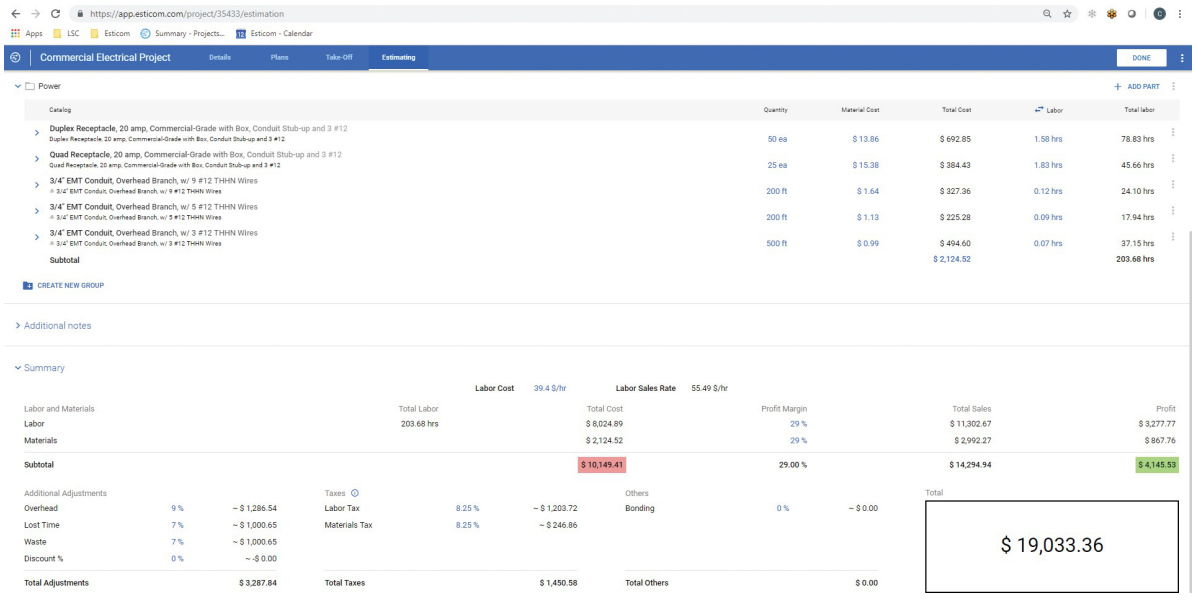
Chapter Four

Building Your Electrical Cost Estimate

Now that we've covered takeoff quantities in the previous chapter, we'll focus this chapter on how to price out your electrical cost estimate. We'll show you how to determine direct costs like material, labor, equipment, subcontractors and indirect costs like office and administrative expenses required to complete the project scope of work

You should have your takeoffs laid out in tabular format like the example below, so you can adjust the task quantity, cost, and labor unit of each systematically. You also want to be able to extend those quantities out to arrive at your total cost and labor per task. And finally, summarize those totals to arrive at your estimated project costs to complete the project scope of work.



9 Steps Required to Determine Break Even Project Cost

1

Adjust your takeoff quantities to the purchase minimums and account for waste. For example, 97 linear feet of conduit would be rounded to 100' as you cannot purchase partials. In addition, for certain items like wire and conduit, you'll need to add a waste percentage.

2

Create a bill of material that you can send to your supplier to get a firm quote for the project. At a minimum, create a bill of material for lighting fixtures and switch gear that you can send out for a firm quote as this fluctuates from project to project.

3

Add labor units in man hours for each task/activity using past production history and/or national cost data for standard installations and extend out by multiplying the labor unit by the quantity to come up with your labor total in man hours for the task.

4

Adjust labor factors for difficulty by percentage of the task. So, for example, installing a lighting fixture at 20 feet versus 10 feet requires a 1.25x increased labor adjustment according to NECA.

5

Determine your crew average "Burdened Labor Cost" for the project, taking into consideration any prevailing wage requirements, after-hours work, overtime, etc. Multiply this number by the total labor hours to arrive at your labor cost.

6

Add lost time percentage for non-productive time. On every project, there will be some degree of lost time or non-productive time where your workers are waiting on other trades, going to pick up missing supplies, etc. You'll want to include some continency on your labor budget to account for this based on the risk of the project.

7

Extend out material quantities and multiply by cost. You should have a firm material quote by now to get your material totals per task. Once you have this, add the totals from each to arrive at your material project totals.

8

Add your "Project Overhead" expenses, i.e., permit, onsite storage, dumpsters, temporary electric, lifts, etc. Note: This overhead is different than the indirect overhead expenses required to run your business.

9

Add your labor, material and project overhead totals up, and move to an estimate summary sheet to arrive at your direct costs to complete the project.

With the above data tabulated and summarized, you can determine the total project cost (estimate) in summary format and determine the detailed unit cost per task. This is possible because you have the data broken down to the task level for the entire project. This is very helpful if you need to add and/or deduct tasks during the estimating process or after the project has been awarded by a project manager creating change orders using the unit cost of a task. Cost estimators can compare between two estimate costs using the detailed unit cost to decide which option is a better value when a customer has requested value engineering to reduce overall construction project costs.

Adjust Overhead and Profit

Finally, take the summary data from your estimate summary sheet and add profit margin to the direct cost of the project. Once you've added profit margin, you need to add a percentage to the project to account for your indirect expenses or overhead costs, and this is traditionally a percentage markup of the project after profit has been added.

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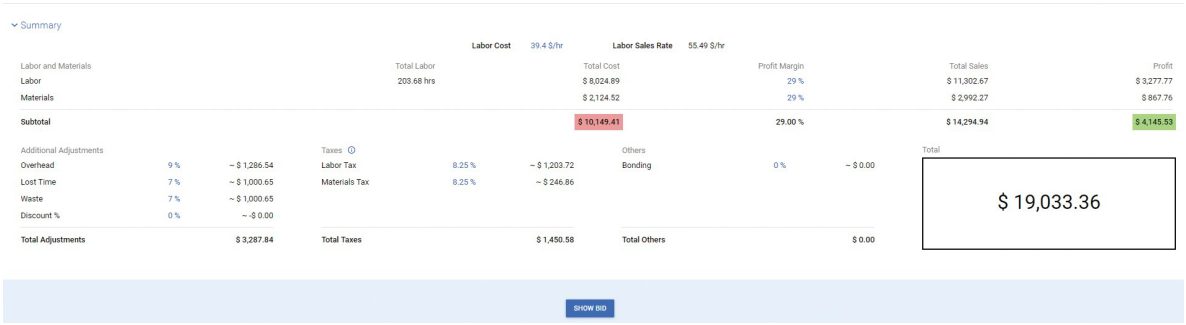

05

Chapter Five

The Imperative: Adjusting for Profit, Overhead & Taxes

Now, for those who are not familiar with the term “overhead,” it’s used to pay for indirect expenses or overhead costs that a business owner incurs while running a contracting business. This can come in the form of office rent, estimating, computers, cell phones, insurance policy, taking general contractors to lunch, misc. expenses that are required to run a construction business and cover the overhead expenses—all while staying profitable.

For example, let’s say you bill out $2,000,000 a year in revenue and have $1,500,000 in direct costs i.e. labor, material, equipment rentals, and tools that are the cost of goods required to produce a finished product, and $300,000 indirect expenses required to run your business for the year i.e. office rent, estimating, sales and marketing for a total $1,800,000 in expenses for the year. To get your overhead percentage, you would divide $300,000 by $1,800,000 and multiply that number by 100 to come up with your indirect expense percentage. Which in this case would be 16.6% and you would apply this percentage to every project that you bid to cover those expenses.

Do not get overhead costs required to run your business and project overhead costs mixed up. These are two different expenses. One is a direct job cost and the other an indirect job cost. For example, on every project you might have to rent a job trailer, dumpsters, trash removal, and attend general contractor meetings. While these are slightly different than standard direct job costs like material and labor costs, they're considered a part of the Cost of Goods (COGs) required to complete the work and stay in good standing with the contract requirements of the project.

On the other hand, while most contractors understand the term “profit,” they do not understand how much profit margin they can and should charge for their work and the true meaning of the term. In the context of overhead and profit used in estimating, we’re referring to gross profit margin which is different than the term “markup.”

If you do not understand the difference, you're not alone. Like many others, you're more than likely leaving money on the table, so let me explain. Markup is a multiplier you use against direct costs. For example, $100 dollars in cost multiplied by 45% would equate to a 45% markup, but only a 31% profit margin. As you can imagine, this means many people are not as profitable as they think and might be charging less profit margin than is industry standard for their service area.

Gross profit margin is calculated by dividing gross profit by the sales price.

So using the previous example, $45 divided by $145 equals 31% in profit margin.
Below are formula equations that represent this method:

- Markup (MU) equals Job Price (P) divided by Direct Field Cost (DC)
- Gross Margin (GM) equals Gross Profit (GP) divided by Job Price (P)

Many small businesses get started because they're very good at a trade, but do not yet know the general and administrative side of running a business-like invoicing, industry standard profit margins, adjusting contractor overhead from year to year, and understanding a net profit report. If you do not have a good accountant, we suggest that you get one that specializes in construction and understands job costing. Not all accountants are the same. There's a big difference between running a restaurant and an electrical contracting business. When you find the right accountant, they will help you understand the numbers, ensure you're charging the right amount, and avoid getting to the end of the year with less money in your pocket than you previously expected.

In conclusion, overhead and profit are two calculations that need to be adequately accounted for on every project to ensure you're covering standard overhead expenses and profit margin.

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Chapter Six

Building a Winning Construction Proposal

Okay, now that you've added your profit margin, overhead, and taxes to the bare costs of your base bid, you now have your sales price for the job and you're ready to build your construction proposal. Depending on who you're providing pricing to—either directly to a customer or to a general contractor—will determine the format and detail you should include in the document.

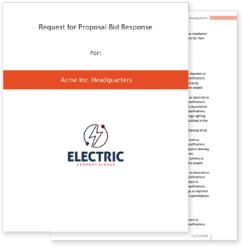
Let me explain, general contractors usually do not care for all the extra verbiage and fluff that goes into a construction proposal and would rather receive a standard bid form for the construction project they're accepting bids on. This is because they're interested in seeing the cost broken out in a format that can be easily compared to competing electrical contractors and checked quickly for scope to ensure nothing is missing from the electrical package that was included in the bidding documents. Ultimately, they will be responsible for delivering a finished product that includes everything outlined in the scope of work per the construction contract at completion of the project.

Standard Bid Forms Include:

- Name of Bidder
- Assumptions - Inclusions/Exclusions
- Base Bid Amount
- Alternates
- Sales Tax
- Performance Bond - Applied Post Tax
- Bid Price
- Signature/Acceptance Page

In addition to the above standard information included in a typical construction bid form, you can also have supplementary requirements or break-outs. For example, some bid packages require that you break the pricing out by CSI formats to make it easier to compare the cost for each scope of work within the construction project. Also, in some cases, the customer might ask for unit costs in their construction bids for change order in the event of additions and deduction of common items. This is to ensure that you do not over charge for change orders after the construction project has been awarded, although we believe firmly that you should increase your profit margin for change orders to account for the additional administrative and mobilization costs often required to complete a smaller scope of work.

When bidding directly to a customer or owner, in either negotiated or competitive bidding, where you're not dealing directly with a general contractor—the owner might appreciate a narrative format found in a standard construction proposal that outlines everything being provided. Generally, the amount of information you include depends on the size of the construction project and your understanding of the situation. If you know you're up against known low bidders, you'll want to outline in detail the value you bring, to justify the potential increase in cost by using you over a competitor. On larger construction projects, you might also go into much more detail than smaller service work.



Note: Free download construction proposal template here »
The free sample contractor proposal example is in Microsoft word format and can be adjusted with your company's logo, branding and saved to a PDF document.

Standard Construction Proposals Include:

- **Cover page** with name of bidder, construction project name and construction business logo
- **Executive summary** that outlines the construction businesses history, and competitive advantages
- **Scope of work** broken out by phase, including bullet point details of the project deliverable's and building methodologies
- **Narrative sections** that outline the:
  - Construction businesses insurance and bidding capabilities
  - Project management and change order processes
  - Project close-out procedure and deliverables
  - Jobsite safety
  - Warranty details
- **Project assumptions** section with bullet points outlining what is included and excluded in your pricing
- **Project pricing page** that includes the projects sub-total or cost broken-out by phase, taxes, project total, and any billing terms outlined
- **Signature/acceptance** page

Today, most electrical contractors opt for “lump sum” bids versus breaking out the details in their bid form or construction bid proposal to secure their pricing. They do this to avoid going through the trouble of bidding a project and providing a construction proposal that details their pricing, only to have their construction proposal used as a price check for a competing electrical contractor. This can be a common practice in the construction business. Depending on the relationship you have with the general contractor or owner, this can be to your benefit if you’re the contractor getting a second look. However, it’s never fun to do all the work only to have your price checked and used to leverage another electrical contractor to lower their bid price.

Depending on the type of work you’ve engaged, different owners will request different contract types based on the size of the project, risk tolerance, etc. We’ve outlined the three most common in the next chapter: Common Types of Construction Contracts

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07

Chapter Seven

Types of Construction Contracts and the Change Order Process

In the world of construction projects, there are a few types of contracts used by owners to secure a contractor to provide a service. This depends on the size of the project and the owners risk tolerance. We've outlined the three most common below and explained the differences between them.

Once a contract has been awarded, inevitably change will occur and requires a change to the original scope of work and the contract. This can be an addition or deduction and you need a way to amend the contract via a formal change order request process. This is can be favorable for you if you run a tight ship and have a formal process in place to track, document and get approval for requested changes. However, this can be unfavorable if you make changes without following the formal process outlined in the contract documents. This can include doing the work on the spot with verbal approval, versus documenting the request and submitting it for written approval and an amended contract before proceeding.

Firm Fixed Price (Lump Sum)

Firm fixed price contracts are commonly used in construction projects where the contractor agrees to deliver a finished product for a fixed price. This includes all labor, material, equipment, and subcontractors needed to complete the agreed upon scope of work. Further, this contract type introduces more risk to the contractor because the contractor's cost can fluctuate. As a result, there is less risk to the owner because they can control costs. However, this transfer of risk comes at a price. The contractor will likely include some percentage cost associated with carrying that risk as a fixed-price incentive, usually hidden in the fixed price of the contract.

In order to protect the contractor, some lump sum contracts include allowances which designate certain costs to the owner if the contractor goes over budget. Incentives can also be included if they finish early and under budget. But there will be penalties if the project is finished late. This contract is popular with owners who want to control costs with a fixed budget and avoid change orders. In some fixed price contracts, there are delivery incentives for arriving under budget and before or on schedule.

Additionally, clauses can be applied to the contract to protect the contractor in the event of an economic price adjustment. For example, a shortage of copper that causes prices to increase significantly for the item. However, in most cases the contractor usually accepts full responsibility to deliver the project under the total cost of the fixed-price contract.

Cost Plus Contracts

In cost plus contracts, the owner assumes most of the risk because they're designated to pay for the costs of construction, purchases, and other expenses produced from the project. On top of that, a percentage goes to the contractor for taking on the construction project. In this type of construction contract, the contractor's risk is minimized because cost overruns whether direct or indirect costs are at the risk for the owner.

THERE ARE DIFFERENT VARIATIONS, INCLUDING:

- **Cost plus fixed percentage**
- **Cost plus fixed fee**
- **Cost plus with guaranteed maximum price contract**
- **Cost plus with guaranteed maximum price contract and bonus contract**

These variations help protect and lower the risk to the owner. This type of contract is most commonly used when the scope of work hasn't been clearly defined. In this scenario, determining the construction project's actual costs would be difficult for a contractor and or too much risk to take on. Due to this risk being passed to the owner, this contract type requires more supervision and tracking than a firm fixed price by the owner. This is to ensure project cost, including material and labor cost, and overhead cost are controlled.

Time and Material Contracts

Time and material contracts involve the owner literally paying for the time and materials spent on a project. This usually involves the owner and contractor agreeing upon hourly rates and actual costs that might come up over the course of the project. The owner assumes more of a risk in this situation versus other contract types like fixed price or cost plus—but, to hedge this risk most will include a not to exceed clause where the contractor sets a high price that they will not go above without prior approval. This contract type is commonly used when the scope of work is small or unclear and there's too much uncertainty to go with a fixed price or cost plus. When invoicing the actual cost, the contractor generally must provide material costs and labor-hour break-out.

The Construction Change Order

Once a construction project has been awarded, inevitably the scope of work will change due to budget, design, or omissions from the original bid documents requiring a pricing change to the construction contract. This process is common in the construction industry and generally requires a formal construction change order request.

COMMON CAUSES FOR A CHANGE ORDER:

- **Change directive from the project owner** that requires extra work and cost to the contractor
- **Unforeseen conditions or site conditions** requiring additional equipment, labor or materials
- **Accelerated schedules or completion dates** that require additional man power, after hours, and weekend work at a higher labor cost

Usually, this is accomplished with a change order form created by a project manager assigned to the construction project. This form will outline the change in scope of work and the price increase to the original contract for an addition or a credit should it be a reduction in the scope of work that is turned into to the general contractor. It's important that you understand the construction change order process outlined in the Division 1 specifications, including who is authorized to approve change orders and what forms are required prior to proceeding.

It's very common for change orders to be rejected when it's time to pay the bill due to someone receiving a verbal approval, but they forget about it later or they're not authorized to approve changes in cost to the approved construction contract. As a rule of thumb, never proceed with work that is outside the approved contract or a change in original scope of work until you have written approval from an authorized individual on the project ownership team as outlined in the contract documents.

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08

Chapter Eight

The Case for Electrical Estimating Software and Conclusion

Today many successful electrical contractors leverage electrical estimating software to systematize the estimating process. By building on a framework that has already been proven successful, they are able to reduce the time it takes to build and streamline their internal estimating process. Estimating software helps increase estimating speed and productivity by removing manual and error prone activities like printing paper plans, manual data entry, and calculations. Imagine uploading your plans and performing an onscreen takeoff with pre-built assemblies that include all the appropriate fittings and components and that calculates the labor and material pricing as you perform the takeoff.

Once the takeoff is complete, you can then adjust quantities, material cost, labor units, difficulty factor, and add profit margin. This can then be used to automatically create a bill of material for quoting out the material required on the project and creating a customer facing quote.

In addition, once the project is awarded, the electrical contractor's project manager and field team have everything needed to build a work break-down structure. This will include labor and material budgets, order material, and schedule resources. The estimate can then be used as a guideline to keep the project running on schedule and under budget.

Lastly, with advances in cloud-based technology, takeoff software and estimating programs are now available for both small and large contractors because they do not require significant IT resources that traditional on-premise estimating software required. This makes it more feasible for small, medium and large electrical contractors to set up and deploy without a large investment in capital and resources for setting up.

In Conclusion, There Are No Shortcuts

There's an old saying, "you can't make good profit out of a bad estimate." This means that in order to be a successful electrical estimator and help your firm flourish, you must start with a good estimate that covers all the job-related costs including overhead and with enough profit built in to make it worth the risk of taking on the work. There are few cases where a contractor can turn around a poorly estimated project that has significant errors and omissions and make it a successful project.

In today's competitive market there just isn't enough profit available to take on the risk of a project without first truly understanding your costs and risk for taking the project. At best, if you do miss, you might break even and then you just wasted months of time and resources. Not to mention, you never know how much money you're losing or leaving on the table. If you estimate projects the correct way as outlined in this guide, you know the risk involved in taking on the work, and this helps you make better decisions, such as decreasing or increasing your sale price or deciding when you should walk away from a project. You need this information to build a profitable company and there's only one way to get there—roll up your sleeves and figure out all the costs and risk required to do the work.

Win more projects.
Waste less time.

Esticom is a cloud-based takeoff and estimating application purpose built for small and medium sized electrical contractors.

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