The Big, Fat Guide to MEP Contractor Change Orders

Trimble®

Contents

As an MEP contractor, the term “change orders” just might send chills down your spine.

It’s not that these routine adjustments to a construction job’s finished product and billing are uncommon or particularly difficult to understand.

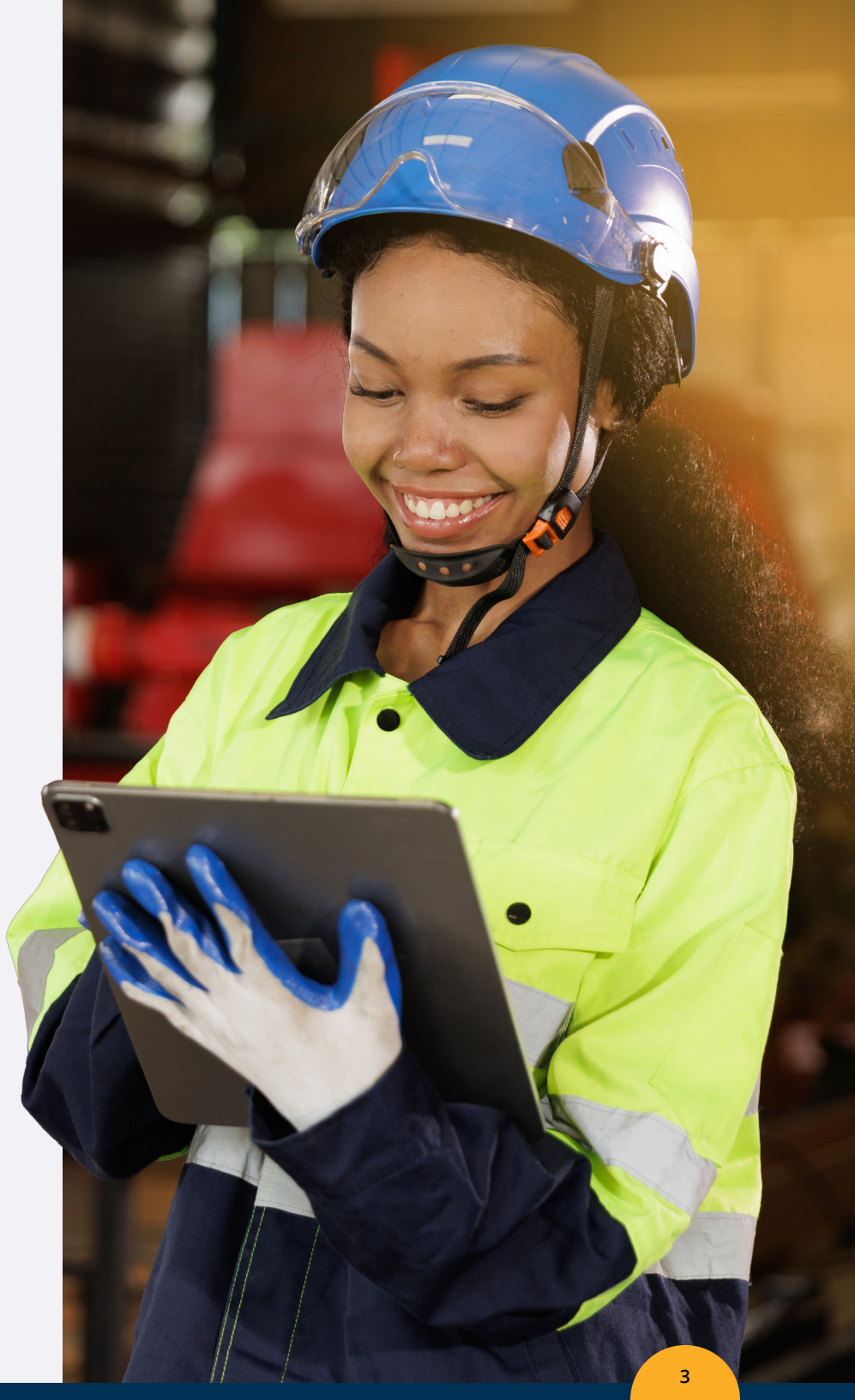
Rather, it’s that many, many contractors routinely lose money in the change order process—a process that, if managed properly, can end up being a great source of revenue.

If you want to develop a consistently successful, growing construction firm, it’s important to buck the trend and become an expert at creating fast, accurate change orders that are regularly approved by the client.

Not only will mastering change orders improve your bottom line, it will also help maintain your reputation—an invaluable asset in the construction trades, and one that dubious or poorly-presented change orders can destroy.

Since so many companies haven’t managed to figure out the keys to fast and accurate change orders, doing so will also serve as a powerful differentiator in a competitive industry.

Read on and see how to transform change orders from a tedious, expensive chore into a well-oiled process that is faster, easier, more accurate—and can earn you more money—than you thought possible.



To accomplish that, we'll cover the following topics:

- How do you create change orders? (And why do some contractors hate them?)
- Calculating the cost of a change order: Which accounting method should you use?
- How should you talk about a change order with the construction manager or GC?
- Tech tools to turn change orders into a profit center

Read on for a detailed explanation of how to make change orders into a revenue-driving area for your company.

Change orders: Profit fade or money maker?

At its core, a change order is simply an adjustment to the original construction plan made after construction has begun. Since these changes require the introduction of new materials, new or additional labor, or both, the change order also has an impact on the cost of the project.

In practice, a change order actually includes a "change directive"—all the time and effort included in identifying the needed change, planning the needed work, estimating the cost, and obtaining approval to move forward from the construction manager, general contractor, or client.The recording of that agreement as a contract addendum is the official "change order."

Anyone who's been on a construction site more than twice in their life knows that it's a highly-dynamic environment: things are changing constantly, whether due to human error, weather, or any number of other circumstances.

Change orders are inevitable—but they can lead to profit fade, if you don't have a well-established workflow in place and miss opportunities to pass the cost on to your client.

On the other hand, change orders can be a money-maker, if you can cost it precisely enough to ensure a profit margin.

Why do change orders create a problem for contractors?

The reason change orders present a challenge is because of their potentially huge impact on the final cost of a project. Generally, the client (or the GC/CM in charge of the project on the client's behalf) will have a reasonable cushion built into their budget for items that overrun the original estimates.

But major change orders can add up quickly, costing not only more money, but more time as well, which can affect both the budget and the project's completion schedule.

Whether the change is actually necessary or not may appear to be a secondary issue when compared to the cost and schedule overruns the change is likely to cause. Essentially, producing a change order is similar—in the client's mind—to the contractor admitting, "I screwed up when I gave you my estimate. This is actually what the project is going to cost…"

No, it’s not fair, and it’s really not accurate. But there’s an inherent conflict of interest in this situation:

The contractor likely bid on the job in the first place, and his or her estimate was a significant part of why the client chose them to do the job. The client needs to trust that this “unexpected” change—popping up after the job has started—isn’t really an expensive addendum the contractor knew would be needed, but chose to leave off their original estimate to make it more appealing during the bidding stage.

After all, with the project already started and all parties heavily invested in completing it, freezing everything to dispute a questionable change order can cost more than just swallowing it immediately.

Of course, most MEP contractors are ethical business professionals who would never try to take advantage of a client that way. But, with that conflict of interests always in the back of their minds, it’s critically important to minimize the number and scale of change orders as well as effectively backing up the need for change orders you turn in.

How to calculate the cost of a change order

Construction change orders must include three separate categories of costs:

- Recoverable Direct Costs
- Overhead and Markup
- Consequential Costs

These areas are typical discussion points when the general contractor or construction manager (GC/CM) questions the cost of the change.

Clear, detailed documentation for each category will greatly speed up the approval process and improve your chances of getting the green light.

1. Direct Costs

Direct costs should be the easiest to define for the GC/CM, and therefore the easiest to get them to approve. Direct costs include more obvious costs like equipment, fuel, fees and sales tax, and safety costs.

All costs that can be directly attributed to the change request need to be clearly documented in detail, including all material, labor, labor burdens, equipment and other related direct job expenses required to complete the change.

2. Overhead and Markup

The bigger challenge comes with agreeing on the definition and calculation of overhead vs. markup vs. profit along with the actual percentages. While everyone understands that businesses need to make more than they spend, that basic truth becomes harder to accept when you're suggesting your own pay increase by means of a change order.

The percentages for overhead and markup are typically pre-defined in the contract documents and range 5% to 10% for each, so half the battle is making sure those pre-determined figures will adequately recover these costs in the event of a change order.

Keep in mind that "profit" and "markup on cost" are not the same: there is a significant difference between how these two figures are calculated and how they impact the bottom line.

"Overhead is generally defined as all of the costs required to run your office, that can't readily be charged to one project."

You would calculate an appropriate overhead by adding up all of your office personnel salaries and benefits, office utilities, office furniture and equipment, business licenses, legal fees, autos and insurance, dues and subscriptions, property taxes, etc. that are not directly attributable to running a project.

Then divide all of these expenses by the total annual sales for your company. This will give you the overhead percentage you would expect to apply to the total change request to recover your overhead.

> "Applying overhead to direct costs is different than applying overhead to the total change order amount. Applying overhead just to direct costs leaves you paying for the privilege of making the change."

It is important to note that applying overhead to direct costs is different than applying overhead to the total change order amount. It's always going to be in your best interests to apply overhead to the total change order, since this provides a more accurate rendering of your real outlay while maintaining the profit margin the customer has already agreed to.

Applying overhead just to direct costs leaves you paying for the privilege of making the change.

This is common sense, but it can make a significant difference in the change order quote. So, it will likely require coaching and education to the GC/CM community before subcontractors gain acceptance.

If the GC/CM agrees with you on the calculations for overhead, then the profit percentage should be an easier discussion.

"Profit" is generally defined as the amount of money a company makes after accounting for all costs and expenses, including overhead.

The next calculation will be to convert the profit to an appropriate markup on costs. The calculation is similar to the overhead calculation, assuming that we are applying the markup on all costs including overhead.

That means your actual markup percent will be slightly higher than the agreed- upon profit percentage in order for you to maintain the profit margin they've agreed to.

Failing to understand and account for these facts is what causes so many clients to balk at change order estimates, and so many contractors to subsequently lose money carrying them out.

3. Consequential Costs

The final piece of the puzzle when recovering your true costs is to understand and account for consequential costs.

These are the costs incurred due to timing and scope changes which may impact overall project costs or duration. This may be a bit more difficult to calculate as they include things like:

- **Stacking of trades** – a change request requires you to place additional manpower within a limited physical space, which results in congestion and difficulty accessing material and tools, and therefore inefficiencies and greater cost.
- **The weather factor** – the change request requires your technicians to work in very hot or cold conditions, lessening productivity and, again, raising costs.
- **Other harm to the business** – could range from a cyber incident to financial or other operational issues that affect business mobility.

Your reputation for accuracy and ethical change order estimation will go a long way in facilitating the coverage of consequential costs as part of your change orders.

How to present a change order to a client or gc

Developing a convincing change order presentation requires several factors working in tandem:

- An understanding of the other party's position
- Attention to detail and thorough support for each line item on the change order
- A desire to negotiate a win-win scenario for everyone involved

What is the client's position regarding the change order?

Whoever is paying the final bill (or has been tasked with managing the project budget) has a clear position in any change order discussion:

- What is this going to cost me?
- Is it a necessary expense?
- Is it going to provide ROI?

Their concern for the budget is understandable, and has to be high on your priority list as well. However, a smart CM/GC will also have a keen interest in receiving the highest-quality product at the end of the job, so these two priorities can balance each other out.

If you're presenting a change order for approval, you need to do so in a way that effectively hits both these high points and answers the decision maker's top three questions.

That's where ***value engineering*** comes into the picture.

Value engineering—a term and practice originated by General Electric in the 1940s—has become more of a blanket term in modern times to encompass ideation and planning with an intentional focus on creating value. In other words, accomplishing great work with efficient use of resources, and therefore doing more with less.

For prompt change order approval, your presentation clearly demonstrates all of the following:

- You've researched the need for the change and it is valid
- You've researched alternatives and are presenting the best solution
- You've researched the materials, labor, and skills necessary to execute the solution and are presenting the best combination available
- You've considered every aspect of the proposed adjustment and can assure the CM/GC or client that your solution offers the highest possible value in terms of cost and ROI

But, how can all these key points be pulled together and effectively presented? There are tools that make an otherwise complex and time-consuming project fast and easy.

While understanding the principles behind an optimal change order and presentation are one thing, **actually putting one together is a whole different animal.**

Tools to streamline and simplify change orders

Anything you can do to help speed up the process, enhance transparency, and ensure accuracy makes a complex, labor-intensive job far easier and more effective. That's why the modern construction firm relies on mechanical and electrical estimating software, 3D BIM modeling tools, BIM project management software, and a host of other high-tech tools to achieve that level of speed and accuracy.

Without the help of software tools for estimating, billing, invoicing, and tracking, each change order could mean "reinventing the wheel" by completely recreating the entire project's itemized materials and labor requirements to include whatever adjustments are proposed in the change order.

But, with software designed to smoothly move from planning and estimation through job management and billing for an entire MEP project workflow, an accurate, detailed change order that strikes the right chord with the CM/GC becomes as simple as a few clicks of the mouse.

The recording of that agreement as a contract addendum is the official "change order."

Learn more:

- What is Trimble Construction One for MEP Contractors?

Trimble Accubid ChangeOrder and Accubid Anywhere Change Management helps you assess the "big picture" of every change order: pricing labor, material, and equipment, but also cleanup, material handling, overtime, relocation delays, and additional supervision and project management.

The software guides you beyond the direct costs and the defined scope of work to assess the indirect costs and consider the full impact of contemplated changes, providing valuable benefits, like:

- **Consistent pricing** - Create and lock in change notices that reflect the way the contract reads. Include all the miscellaneous, direct, and indirect costs. Incorporate base contract material and unit pricing and save these for use throughout the project.
- **Flexible discount/markup** - Discount or markup material or labor costs by whatever percentage or amount you select. Choose detail or summary information giving the owner and CM/GC everything they need for approval. Accubid ChangeOrder and Accubid Anywhere Change Management provide project consistency and maximize profit potential.
- **Customizable reports** - Reusable report styles allow you to produce consistent and professional-looking reports. With the option to customize reports for each project and save your customizations for future use. You can determine the appearance and contents of both client and office reports, specify the report title, and even include your company logo.
- **Change order status at a glance** - The status of all the changes on a project are seen on one screen giving the project manager complete visibility and control. The base bid from Trimble Accubid Classic (or Accubid Anywhere) can be easily imported into the equivalent change order management tool, providing original contract amounts. As change orders move from pending to approved or rejected, the contracts-to-date amounts are automatically updated providing a clear picture on amounts that should be given to accounting for accurate monthly billings.

With ChangeOrder or Change Management, you have the ultimate tools for preparing and delivering fast and accurate change orders that highlight your value engineering efforts in plain language.

Change orders that focus on value and ROI are most likely to be approved, so these solutions have been designed to speed up and simplify the process of creating and presenting change orders while simultaneously improving the approval rate.

Of course, a tool is only as powerful as the toolbox it comes from. So, let's step back and consider the full Accubid Classic Estimating suite.

What can Automated Change Order Software do?

Trimble Accubid Classic Estimating and Accubid Enterprise Estimating are the original full-featured MEP estimating solutions that facilitate the complete construction workflow: estimating, purchasing, project management and billing. Both systems include a vast feature set that adds value across related disciplines:

Proven material database - Over 33,000 items and 9,500 assemblies—flexible enough for any sized project. You can hit the ground running with labor units, labor factoring, labor tracking and cost codes built right into the program.

Dynamic takeoffs - Easily create custom, project specific assemblies on-the-fly to meet the needs of your unique projects. The built-in dynamic takeoff capability automatically calculates the required quantities for each component in an assembly based on length or count specifications.

Multi-level breakdowns - Applying takeoff breakdowns in a multi-dimensional format, Accubid Classic allows users to view subtotals across breakdowns in any order. With complete flexibility and control, you can easily re-sort the extension and view the bid by any combination of breakdowns.

Live extensions - Instantly calculates each takeoff as it occurs. With a single click, you can jump from the audit trail to the extended bill of materials. Easily sort the bill of materials to perform last minute checks and ensure accuracy. Changes to the quantity, material and labor are immediately reflected in the final price.

Instant bid summary - Compare components of the estimate using labor-to-material ratios, costs per foot, per system or per floor. Last minute adjustments, modifications, and what-ifs can be easily and seamlessly accommodated.

Project management - Break down the entire bid by logical and physical aspects such as floor, system, area, cost code, or drawing, and export this information to other applications including Excel or Microsoft Project.Tr. Project managers can quickly create a preliminary construction schedule or e-mail material lists to suppliers.

Beyond this core functionality, Trimble Accubid Anywhere offers greater value and power for large-scale firms. It is a cloud-based, multi-user platform for electrical, industrial mechanical, and ICT contractors that builds on that strong foundation to provide a more robust offering.

There are also more specialized versions for particular disciplines, including Trimble AutoBid SheetMetal and Trimble AutoBid Mechanical.

If you're like most MEP contractors, there's room for improvement in your current change order creation, presentation, and implementation process. And Trimble MEP is ready to connect your business to the future.

Contact us
or request a demo
to get your change
orders in order - today!

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