ASSEMBLE SYSTEMS
WORKFLOW GUIDE

Estimating from the BIM Model
Generate Highly Accurate Estimates to Assess Real-Time Project Costs
Estimating from the BIM Model

How important are accurate estimates to the success of a general contracting business? They’re critical. Accurate estimating aligns directly with profitability, and low profits are more often due to poor estimating than to unforeseen circumstances on the job. Accurate estimates can be the difference in winning or losing work: The more uncertainty in an estimate, the greater the contingency you’ll add, and the greater the chance that you won’t win the work.

On the other hand, when you can eliminate all or most of your estimating guesswork, you can increase bid competitiveness, optimize profits, and improve your company’s financial stability overall.

OUT WITH THE OLD

Estimating the costs of building systems, materials, and equipment is nothing short of an art, from applying unit rates to takeoffs derived from specifications, drawings, and lists (and accounting for corresponding materials and equipment requirements per unit) to including prefabricated components and incorporating various quotes from vendors. As a project grows in size and complexity, so does the estimating process.

Traditional, manual approaches to estimating — including those assisted by 2D takeoff tools — are not up to the task of today’s complex projects. Manually locating and counting objects from a 2D drawing is tedious, time-consuming, and prone to misinterpretation and error. And, the areas in which the estimator has less expertise have an even greater margin of error. Consulting subcontractors or other sources for clarification can be difficult if not impossible under deadline pressure, so many contractors facing this situation resort to guesswork.

When the potential for error is high, the contractor’s confidence in the numbers is low, and he or she will compensate by padding the bid contingency; the lower the confidence, the higher the contingency. The 2012 Construction Estimating Benchmark Report by Software Advice, Inc., showed that contractors doing manual estimating tend to overestimate bids approximately 55% of the time. The highly padded bid that results from a manual estimating process not only misrepresents a contractor’s actual abilities and costs, it is less likely to win a project when competing with bids based on accurate data.
A BETTER WAY: MODEL-BASED ESTIMATING WITH ASSEMBLE

Fortunately, Assemble Systems has developed a solution that overcomes the challenges of traditional, manual estimating processes. Affordable, flexible, and easy to use, the cloud-based software draws on data in the building information model (BIM) to generate highly accurate, reliable quantities in any reporting format you need.

Because of the increase in model-based projects, contractors today are basing estimates on a combination of 2D and 3D takeoffs. Estimators often develop early cost estimates using just a 2D program, but as the model evolves and becomes more inclusive of all construction elements, it becomes increasingly difficult to manage updates in a 2D environment. At that point, estimators can call on Assemble to manage design iterations throughout the preconstruction phase.

Following are a few examples of Assemble Systems functionality that supports the estimating process.

- Assemble allows you to extract quantities in a matter of seconds based on the most accurate, up-to-date data in the BIM model.
- Assemble gives you access to dynamically connected 2D SmartSheets along with 3D models which allow estimators to compare and visualize the project’s 2D drawing in the context of the model. This combination makes the estimation of curved walls, glazing systems, complex roof line and detailed ceiling layout easier and provides a precise calculation for surface area, perimeter, etc.
- Assemble makes it easy to sort, group, and categorize model objects by work breakdown structure (WBS) or bid package, helping you prepare for a more accurate, efficient process on bid day. Estimators can easily move objects to other bid packages to verify bids, or pull quantities to compare with subcontractor numbers.
- Using Assemble’s Model Variance functionality, estimators can quickly identify the changes made between various design iterations and account for those changes in project estimates, whether the change is in quantity, location, or type. This helps ensure that a bid reflects the most up-to-date project specs. During construction, it can help prevent expensive rework that results from missed change orders.
- When general contractors or estimators are not completely familiar with the means and methods of the work, they can use Assemble to quickly check that quantities provided by a subcontractor are reasonably consistent with quantities contained in the model, saving days or even weeks of time that would otherwise be spent verifying quantities.

Plans and specifications convey only partial design intent. General contractors and estimators can review the BIM model to understand scope, complexity, and constructability — and therefore gain full understanding of the project and your potential risk.

Virtually no two construction projects, and no two project estimates, are alike; therefore, the general contractor already is at a disadvantage in the estimating process because it can be streamlined only to a limited degree. Assemble provides the flexibility to adapt to the details of any project while delivering highly accurate costs regardless of varying project details. Model-based estimates are not only more accurate than manual estimating, they're also much faster. The time you save doing model-based estimating can now be devoted to high-value activities such as reviewing constructability and exploring value engineering and other methods of improved project delivery.
AVOID MISTAKES INCREASE PROFITS

The fast pace of modern construction projects means that time is always at a premium. For estimators, the pressure to produce estimates faster leads to increased risk of costly inaccuracies. Model-based estimating processes not only produce more accurate estimates but also do so much more quickly than traditional manual or 2D takeoff systems.

You need to bid more jobs to win more jobs — and 3D model-based takeoff allows you to bid on more projects without hiring additional personnel. If your current cost-estimating process is slowing you down and keeping you from pursuing viable opportunities, you’re losing out tremendously. Remember, however, that it’s not good business to pursue every project opportunity. Model-based estimating allows you to accurately assess real project costs, even when the nature of the job is new, to determine if a project would be profitable for your company.

When you invest the time early in a project to ensure the cost estimate reflects your business expertise and profitability goals, and supplement that effort using a highly accurate model-based estimating solution, you’ll increase your odds of success in addition to the profit margin on your completed projects.