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Estimating and 3D Quantity Takeoff with BIM 360

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Learning Objectives

- Learn how to use BIM 360 and Estimator for 3D quantity takeoff
- Learn how to prepare BIM files for better quantity takeoff and estimating
- Discover opportunities for BIM managers and estimators to collaborate
- Learn how to reduce the amount of time needed to perform 3D quantity takeoff

Description

The class will cover the use of BIM 360 and Beck Technology's DESTINI Estimator integration. We will explore how this integration came to be and why it is important for collaborative project teams. We will show how to connect to BIM 360 models from within the Estimator platform and perform 3D quantity takeoff for an estimate. We will show the tools' use on real-world projects and showcase future developments of the integration by using the Forge development platform.

Speaker(s)

As the Chief Technology Officer, Michael directs the product strategy and technology vision for all of Beck Technology's products and manages the departments responsible for software development, quality assurance, and technical support. As a 20 year veteran in construction and technology, Michael has a passion for innovation and a deep caring for revolutionizing the construction industry.

As vice president of Technology and Innovation at PARIC Andy focuses on innovation and strategic planning while continuing to cultivate successes with the implementation of technology for VDC, Precon, Operations, and IT. Andy believes in leveraging highly integrated platforms to develop an effective network of tools and processes. Andy is passionate about enabling office and project teams to be more collaborative and efficient, all while improving quality and reducing project costs and durations.

Today, it is unrealistic to think that you can get all of your quantities from a model without a real effort and coordination with the author of the model.

Using BIM 360 for 3D Quantity Takeoff

Know that the model will not have all the quantities, use it for what it can reliably provide, and augment those quantities with 2D documents and experience.

As with anything, there are many ways to obtain quantities from a model. There are two ways that we see more often than any others when you have an integrated estimating solution.

Method 1: Organizing the Model First

This method involves selecting the properties of the model that represent how you want to break down the model, filtering the model by these properties, and then tying them to the estimate.

PRO TIP: *work with the author of the model prior to its creation to ensure that the data you want is already in place. Having your estimators as part of the BIM execution plan is invaluable.*

Method 2: Direct Model Interaction

Here we interact directly with the model by selecting items that we want to quantify directly in the model, finding all of the other matching / similar objects, and then tying it to costs.

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Handling Different Model Formats and Authors

Put simply, different model formats come with different default data. This paradigm is also seen when working with different designers / model authors.

Have a Few Good Starting Points

Having a small set of default properties based on the format of the model is a great way to save time and drive consistency in your projects. For example, in BIM 360, native Revit files will have a different set of properties than Navisworks files or IFC files.

Creating lists of properties based on file format (.rvt, .nwd, .ifc, etc.) or even by designer, will save your team a lot of time getting up to speed. Some products support this concept using something known as whitelists (follow the link below to learn more).

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Create a Standard and Get Involved Early

Create a list of properties that you need to have that is simple enough for your design partners to incorporate into their plans and still allows you to break the model down the way you need to.

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Places Where You Will Struggle

We are still on our journey to being able to get good quantities from a model, so there are some pitfalls that you will hit along the way.

Some Key Quantities are Not Available … Yet

Here are some of the most common places where quantities are not available:

- Tiltwall panel area
- Curtainwall system area
- Sheetrock count for interior partitions
- Steel column height for tonnage calculation
- Cladding corner conditions

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Sometimes You Have to Augment the Model Data with Estimate Data

You will run into times where the model component does not have all of the property data derive its quantity entirely from its properties. When this happens, you need to augment with data in the estimate itself. Having the ability to make these changes on the fly is vital.

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Handling Project Changes

By their nature, every project will change repeatedly throughout the pre-construction process, so every estimating process should have a good plan on handling changes to project scope.

Be Able to Handle the Change

When a new model version is delivered, being able to compare the versions, understand the differences, and handle the impact of those differences on the estimate defines if you win or lose.

Be Able to Communicate the Change and Its Impact

When the project scope changes, you must be able to communicate this change and the impact that change has had on the estimate in a way that inspires trust in your stakeholders and is easy for them to understand.

Be Able to Track Changes Across the Life of the Project

The ability to embrace change is the first step, but the ability to predict change and your likely reaction is where you can change the game.

What You Get With Integrated Data

Getting quantities from a model is valuable but being able to link the model components with the costs offers value on a completely different level.

Data Sharing Makes the Model and the Estimate Smarter

Having your costs know about all of the data in the model components they are associated with and having the model components know about all of the data the cost items know about is huge. This enables teams to present estimates graphically to stakeholders, break down models by any costing breakdown structure to allow your team to instantly classify and re-quantify based on how you think about the project, and break down the estimate by model constructs like building, floor number, department, etc.

QA / QC Your Estimate

Linked data enables your team to quickly determine where a quantity came from, both during estimate review and 5 years later when you are mining data for historical purposes.

Easily Handle Model Updates and Their Impact on the Estimate.

With connected data, you can quickly see and handle the impact to the estimate as the project scope evolves.