A Better Way to Assemble Estimating Quantities from Intelligent Models Using Assemble Systems

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Learning Objectives

- Learn how to manage content in models to better support accurate takeoffs
- Learn how to develop templates in Assemble Systems to quickly generate construction quantities on projects
- Learn how to display quantity information to the project team using Power BI
- Learn how to create visual display of quantities within Assemble Systems for quality-control purposes

Description

Drastically accelerate your ability to get accurate material takeoffs. By using UNIFI, Revit software, Assemble Systems, and Microsoft Power BI, we've developed a workflow to easily generate accurate, timely BIM (Building Information Modeling) quantity takeoffs that can be shared with the entire project team. The workflow greatly reduces the time spent to complete an initial quantity takeoff. Project updates can easily be captured at major milestones and instantly updated to a Power BI dashboard, where the entire project team can access the data. By using a combination of Assemble Systems and Power BI, the estimating and project team can easily see and understand the location of the quantities that are being generated, and how those quantities are impacting the cost of the project throughout the lifecycle of the project design. In addition, this information is more easily accessible via web-hosted solutions.

Speakers

Josh Krautmann is an Engineering Technician in the Design and Virtual Construction Department in the Black and Veatch Water Division. He has thirteen years of experience in electrical design and drafting on large commercial and industrial projects. In addition to his design experience, he has two years of experience working in construction estimating completing quantity takeoffs, material pricing and labor for a variety projects. He has been a champion for integrating BIM practices and software into the current estimating procedures.

Brian Melton is a Technology Evangelist at Black & Veatch, where he helps embrace digital transformation and recognize its impact on project delivery for the Water business of Black & Veatch. Brian has been with Black & Veatch for 19 years. He has had the opportunity to be a part of some of the largest infrastructure projects around the globe, including mining, hydropower, and water and wastewater treatment, conveyance and storage, frequently working with teams in North and South America, the UK, India and Asia. He has an extensive background in Building Information Modeling with respect to water projects. Brian helps establish development strategies, supports technical implementations and frequently works with external partners, vendors and clients.
Manage Content In Models to Better Support Accurate Takeoffs

Add Parameters to Revit Content

Use specific parameters for each Revit Family. This could be a QTO Cost Code or other Work Breakdown Structure (WBS) code that you would like to use to organize the quantities when completing takeoffs.

Store the Revit Families in a Database

Storing the Revit families in a database, such as UNIFI, allows for easy reuse and consistency in the model content.
Develop Templates in Assemble Systems to Quickly Generate Construction Quantities on Projects

Templatize Views for Each QTO Cost Code or WBS

Create template views for each QTO Cost Code or WBS category that you would like to use for your quantity takeoffs. These views can be imported into your Assemble Systems project. This will also bring in the visibility settings that you have created in the template view. For example, in the image below we have a template view for the QTO Cost Code for Division 03 – Concrete. The template includes Revit objects that have been coded with Division 03 cost codes. Once brought into an Assemble Systems project, the model data will automatically be sorted to show only those cost codes for Division 03.
Display Quantity Information to the Project Team Using Power BI

Assemble Systems has a Built in Connection to Power BI

You can create Power BI dashboards to display the information from Assemble Systems. This can be used to track things like quantity changes between design submittals. Using a Power BI dashboard allows the information out of Assemble Systems to easily be viewed by Project Managers, Design Engineering Staff, Clients and other stakeholders without having to access or having knowledge of the Assemble Systems software.
Using Assemble Systems for Quality-Control

Create Template Views for QC

Similar to the views that were created for each desired QTO Cost Code or WBS, views can also be created to show information that is missing information. For example, in the below image, only information that is missing a QTO Cost Code is being shown.

Color Code by QTO Cost Code or WBS for QC

Using the Color by Property feature in Assemble Systems, you can add specific colors to each QTO Cost Code or WBS. This allows the user to easily see items that might have an incorrect code entered. For example, in the concrete example below, the green item is a concrete slab. If a wall was colored green, instead of red, we could easily see that the object is coded incorrectly in the Revit family.