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EXECUTIVE SUMMARY

Electrical Contractors and BIM: What It Can Do for You

- BIM streamlines project execution, from concept to operation and modification.
- Conceptional design: Spatial layout and visualization in BIM.
- Detailed design: Systems, estimation, and quantities in BIM.
- Coordination: Identifying and resolving conflicts in BIM.
- Construction: Pre-fab materials and BIM.
- Operation: Repair and maintenance support in BIM.
- Using ABB eFab pre-configured assemblies in AutoDesk Revit.

JUNE 17, 2020

Matt Boltik, BIM Technologist, Faith Technologies
Matthew O'Kane, VP Digital Customer Experience, ABB

in partnership with

ABB

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Overview

Building information modeling (BIM) software has proven to be an effective tool in managing the construction process, helping contractors decrease the cost and schedule impacts from inaccurate designs. Electrical contractors are among the professionals seeing the benefits of BIM in their projects.

ABB further assists contractors, providing virtual representations of their eFab pre-configured assemblies within one BIM tool, AutoDesk Revit. This downloadable content helps ensure proper placement and scheduling of these assemblies throughout construction projects.

Context

Matt Boltik walked through how electrical contractors can use BIM software to streamline project execution. Matthew O'Kane discussed ABB's eFab pre-configured assemblies, and how they can be used within Revit.

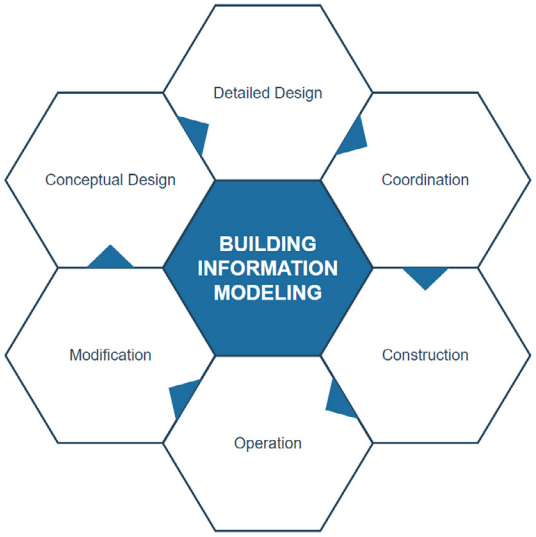
Key Takeaways

BIM streamlines project execution, from concept to operation and modification.

BIM software is an intelligent three-dimensional model-based process that gives architecture, engineering, and construction (AEC) professionals the insight and tools to streamline entire projects.

AEC professionals can use BIM software throughout the complete building process.

How BIM is used throughout the building process



1. **Conceptual design** focuses on spatial layout visualization and design options, ensuring everything fits together at a high level.
2. **Detailed design** dives into the specific system that will be put in place. This phase includes estimation of time and resources and determining quantities of materials needed, and allows for project simulation.
3. **Coordination** makes sure there are no conflicts between the different trades interacting in the building or with the materials. This phase includes deviations and constructability.
4. **Construction** is where logistics and processes are identified, and where pre-fabricated (pre-fab) items are included to simplify the project.
5. **Operation** moves the project into the owner's hands. This phase includes facility management, repair, and maintenance.
6. **Modification** focuses on changes that need to be made to the building at a later date, including retrofitting, recycling, and replacement.

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The more information you put into BIM, the more you'll get out of the entire process.

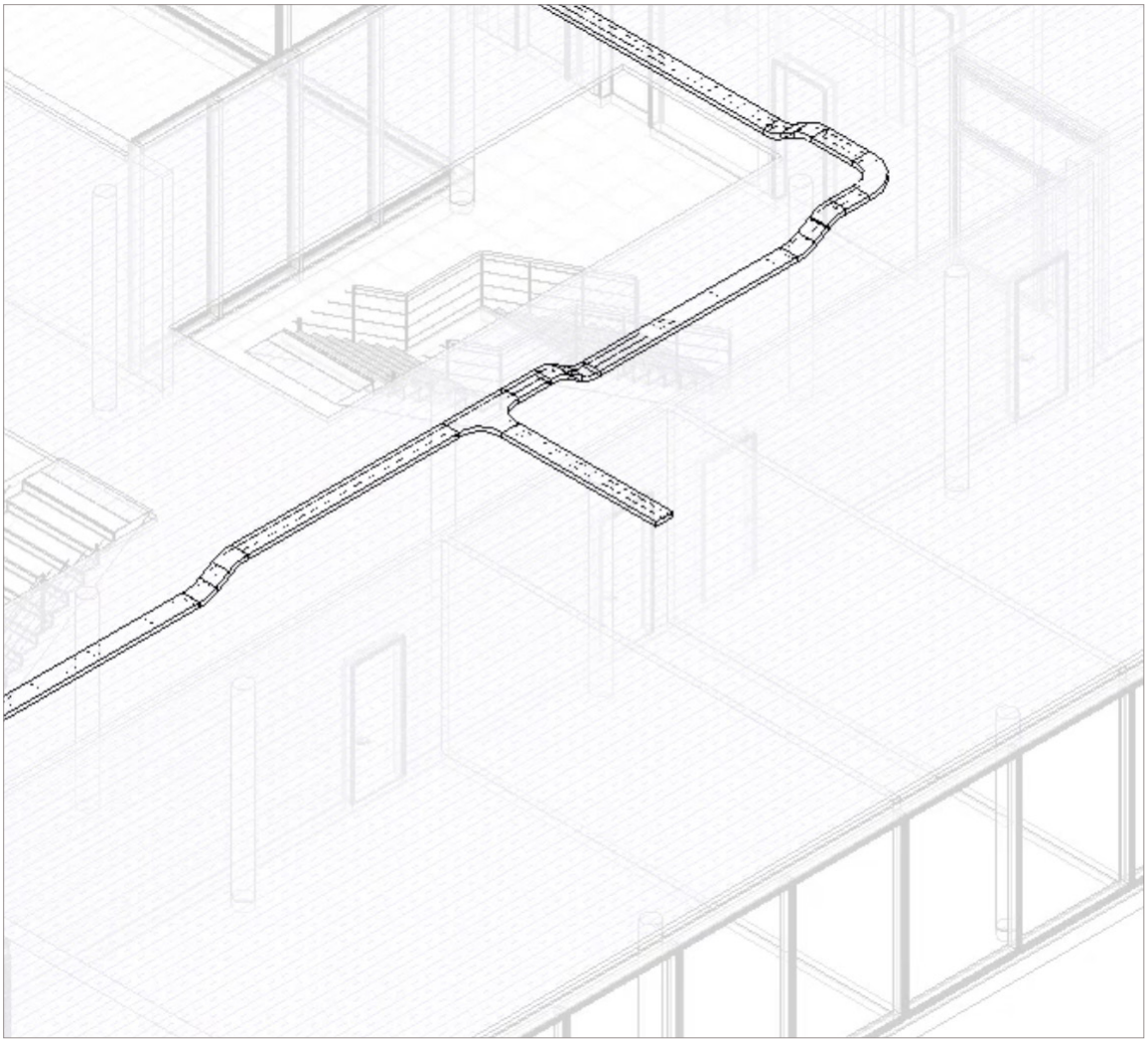
Matt Boltik

Throughout the webinar the presenters discussed the use of BIM during each of these stages of the building process.

1. Conceptional design: Spatial layout and visualization in BIM.

Using BIM, designers can visualize high-level systems, such as a cable tray system that expands outwards from the electrical room to service the entire building. Details, such as manufacturer or exact sizing, is not necessary in this phase; just the placement to signify the component.

Cable tray system layout in a BIM during the conceptual design phase



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2. Detailed design: Systems, estimation, and quantities in BIM.

Conceptual layouts are enhanced during the detailed design phase. Information such as manufacturer and part are added to the layout. During this phase, every element in the project is scheduled, and accurate counts are given across the project for each element type. Schedules can be:

- **Generic,** such as a "cable tray in the project," or
- **Granular,** such as "cable tray runs on level 1 greater than 3 feet, from a specific manufacturer."

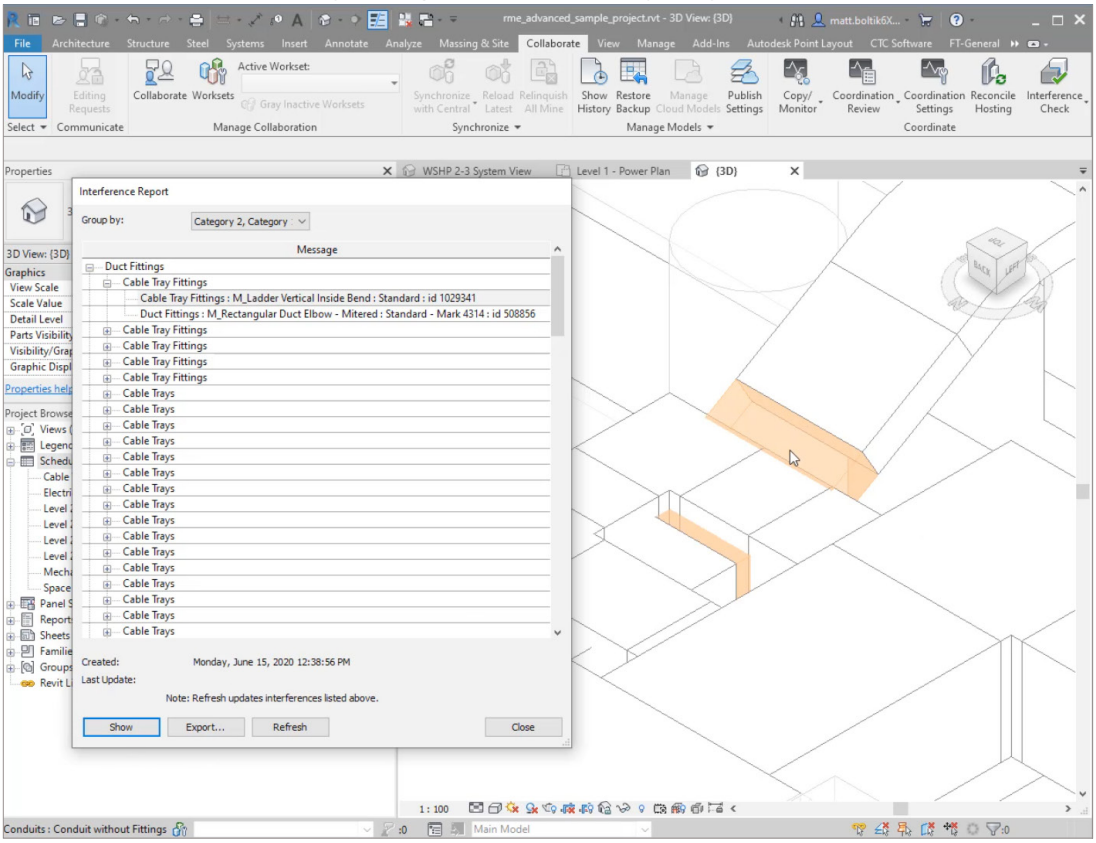
Checks can also be run on the schedule to identify problems, such as when an item does not meet the manufacturer specifications, meaning it can't be produced. Identifying these problems up front saves both time and money, as changes are easier and less costly to make in the design phase.

3. Coordination: Identifying and resolving conflicts in BIM.

BIM identifies design conflicts in real time within the software, enabling users to identify and resolve conflicts before they impact project schedules and budgets.

For example, in Figure 3 below a ductwork layout is copied from one floor of a building to the next, but one of the floors has a different height. BIM identifies that conflict so the ductwork can be adjusted for that floor in the design phase.

BIM catches conflicts, enabling low-impact resolution during design



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4. Construction: Pre-fab materials and BIM.

BIM tools support designs with pre-fab materials, and enable replication of those designs throughout projects. These assemblies can be repeatable or used on a one-off basis to assist with fabrication.

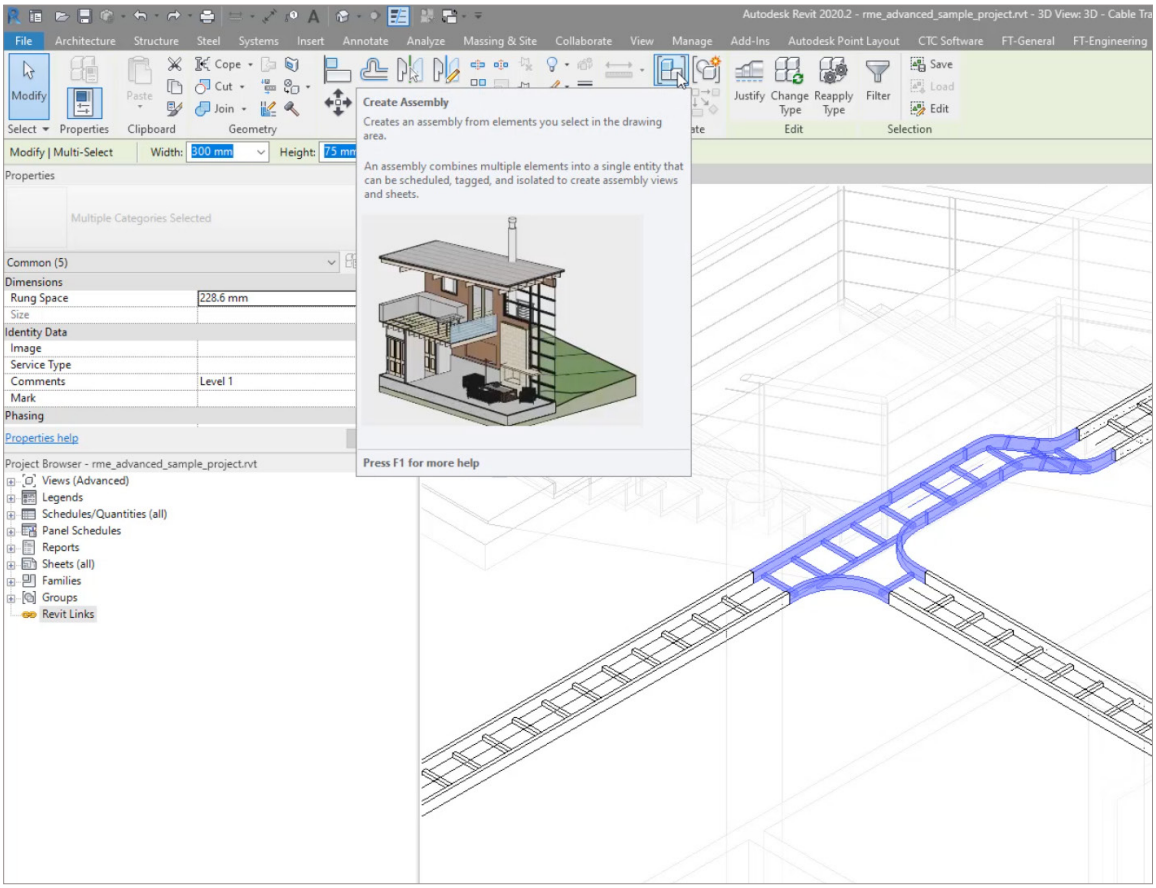
Assemblies allow content to be placed, tagged, and scheduled as a single item, rather than a disparate set of components. Views and schedules of parts are automatically generated for each assembly.

5. Operation: Repair and maintenance support in BIM.

Once the construction project is complete, building owners who have access to BIM can use the designs to support repair and maintenance, as well as any post-construction designs, like retrofits, that need to occur in the future.

BIM designs can store custom parameters, such as warranty terms, installation dates, maintenance schedules, and last and next maintenance dates. Because the information is custom, owners can determine what information they want to retain in the product.

Pre-fab assembly of a junction created within BIM



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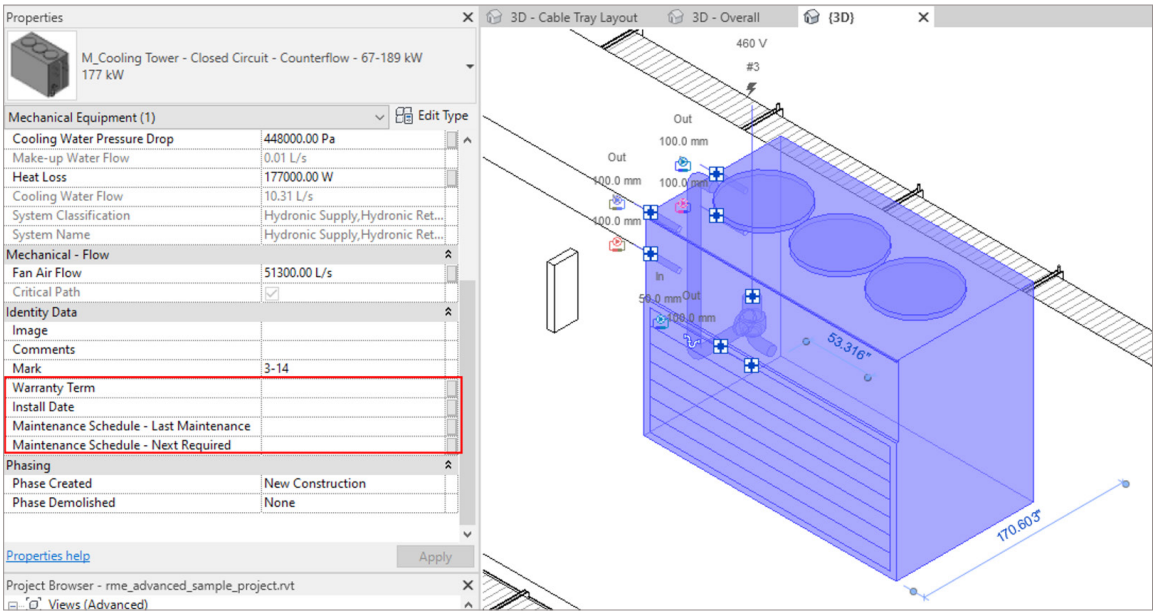
Identifying custom data can be associated with specific components and designs



Using ABB eFab pre-configured assemblies in AutoDesk Revit.

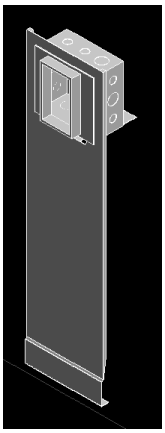
ABB offers eFab preconfigured assemblies that enable electrical contractors to reduce overall job costs and complete projects faster. ABB eFab Revit families were created for the BIM tool with a goal of enhancing the user experience, from placement of ABB eFab products within the design to scheduling.

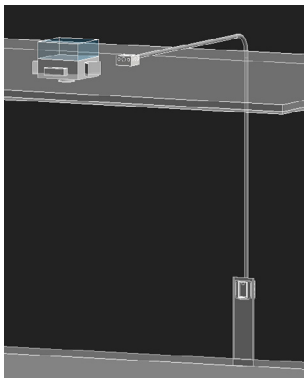
The ability to preconfigure anything prior to the job is going to save time and money.

Matthew O'Kane

ABB eFab Revit families can be downloaded from the ABB website. These families are easy to load, easy to place and align in the plan for precision coordination, and offer an accurate three-dimensional representation of the assembly.

ABB eFab Revit families include electrical boxes and knock-out locations





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Biographies

Matt Boltik
BIM Technologist, Faith Technologies

Matt is a BIM Technologist for one of the nation's largest electrical contractors. He works alongside the engineering, VDC, and detailing teams to implement new technologies as well as train on the existing programs that are used in daily processes. Before his current role he was a content creation expert who worked alongside multi-national corporations to make their library of products available for use in BIM platforms.

He has experience in a variety of technical roles throughout the AEC industry and is always pushing to get the most possible out of the building information modeling process. This has led to new developments in Revit content, streamlined processes for library management, and a constant curiosity for what can be done next in the AEC space.

Matthew O'Kane
VP Digital Customer Experience, ABB

Matt brings more than 30 years of experience to his position at ABB, with a specialized expertise in sales, marketing, strategic planning and business development in the electric power, industrial automation, and power quality segments. Over the course of his career he has developed unique skills in driving acquisitions, new product development, digital sales enablement and the creation of new sales channels.

Prior to joining ABB, Matt was Vice President of Industrial Automation for Schneider Electric in the US. Matt also has held senior leadership roles at S&C Electric and Emerson Electric and began his career with Reliance Electric. Matt holds a Bachelor of Science degree in electrical engineering technology from the University of Maine and he is a published author.