



IT22325

Zero to CD in 90 Minutes with Autodesk Revit

Tony R. Crawford
CAD-1

Brian D. Juge, AIA
CAD-1

Learning Objectives

- Learn how to create a template that does more routine tasks for you.
- Learn how to engage the BIM process further than you have before.
- Learn how to reduce billable time spent on repeatable tasks.
- Learn how to focus on your design rather than on the software.

Description

You know how to use Revit software—but are you using every tool at your disposal? Are there still more ways in which you can make the software do the routine tasks, enabling you to focus on your design?

In this session, Tony and Brian will show how much you can do with Revit software if you never stop looking for ways to engage the software and pull out every stop. Starting with a kickin' template helps too. Building Information Modeling (BIM) workflows are changing the way we design and construct buildings. In just 90 minutes, we will demonstrate that you can go from a blank file to a set of drawings—complete with schedules, details, analysis, systems, sheets, and more. Brian will create an architectural model, and then Tony will add the MEP (mechanical, electrical, and/or plumbing) systems to a model created live within this session.

AIA Approved



Your AU Expert(s)

Tony Crawford has been a Mechanical Engineer working in a variety of aspects for 20 years and is always looking for better ways to build a mousetrap. Currently an Autodesk Certified Instructor, for the past few years he has taught Revit MEP to more students than almost any Autodesk ATC instructor in North America and consistently receives the highest ratings from his students by keeping each class engaging, relevant, and enjoyable. Previous lives include serving as a CAD manager instrumental in developing CAD Standards, BIM Director/Manager responsible for implementing Revit MEP, and in Facilities Management, where he was responsible for creating conceptual models for large A/E firms.

Brian Juge is a registered architect in both Colorado and California, and has been in practice since 1995. He attended California Polytechnic University of Pomona and graduated with a 5-year Bachelor of Science degree in Architecture in 2001. He spent the next five years in southern California designing custom homes and club houses in Laguna Beach and Newport Beach before relocating to Colorado. During that time Brian quickly learned multiple types of 3D software including AutoCAD and 3ds Max. In January of 2011, Brian joined the CAD-1 team as an AutoCAD and Revit instructor. His approach to training brings in real world explanations and examples similar to his time spent as a project Architect. Brian still maintains his private practice, keeping his mind sharp on today's current codes and AEC industry requirements. His valuable experience in high-end custom residential, multi-family housing, hospitality design, as well as commercial and industrial design, make Brian an asset to the CAD-1 team. Brian has successfully completed Associate and Professional Certifications from Autodesk and currently holds the status of an Autodesk Certified Professional. Always one with a positive outlook on life, as well as a sense of humor, Brian aspires to expand his knowledge and fulfill his clients' needs.

Summary:

BIM advocates will tell you that producing a project in BIM can be faster than in CAD. Perhaps you've already seen this in your own projects, and perhaps you haven't.

In this Instructional demo, we plan to prove that assertion by actually producing a set of construction documents from a blank file within this 90-minute session.

To replicate this general idea you will need to do a few things:

- 1) Be open to change. This is not your father's CAD workflow.
- 2) Invest the time up front, before you even have a project to work on. Take the time to get training. Take the time to set up a Revit project template specific to the needs of your company.
- 3) Look for new tools or workflows that can benefit you. Just because you couldn't do something in CAD doesn't mean that you can't do it in BIM.

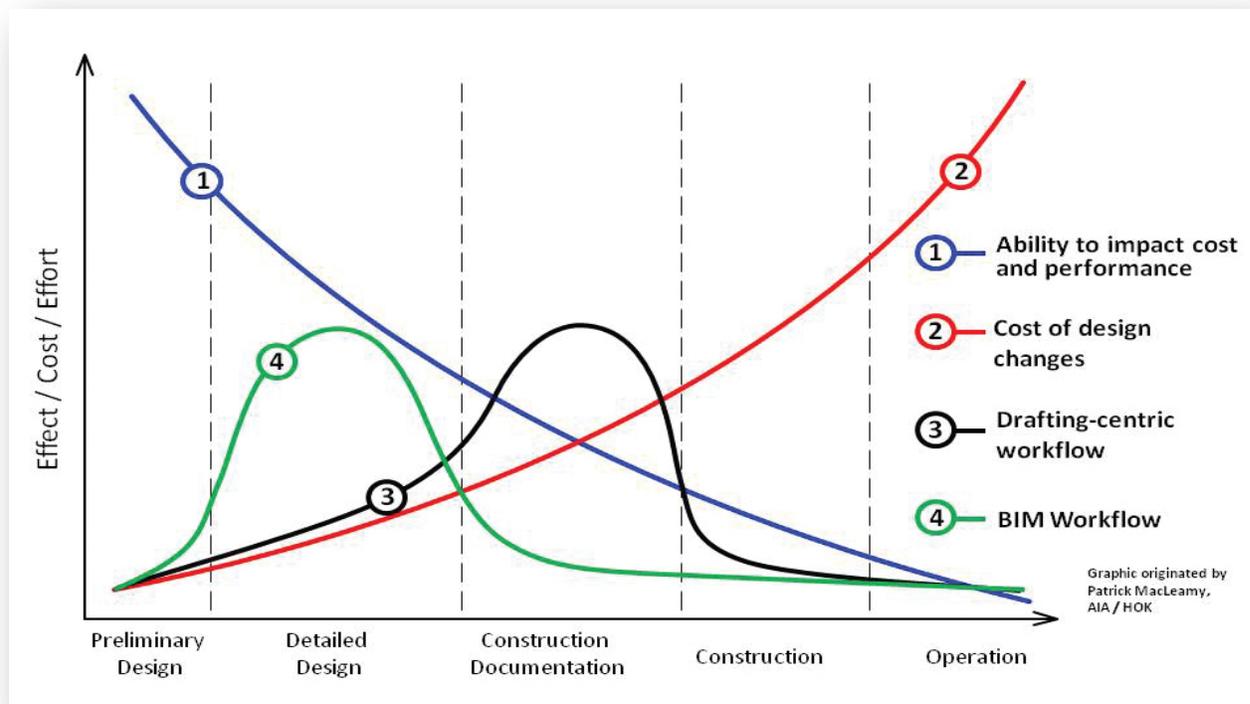


HOW does this benefit me?

Almost anyone who has been in the AEC industry for any length of time knows that the industry transitioned long ago from hand drafting on paper to drafting on the computer, or CAD. Now the industry is transitioning from drafting on the computer to modeling on the computer, or BIM. During the transition from drafting to CAD there were growing pains. Companies had to adopt new workflows, and the methods of producing their drawings has evolved and continues to evolve. The specific details of the growing pains and hurdles that were experienced by designers and drafters during that transition have been largely forgotten in the many years since moving from hand drafting to CAD. Many younger designers and drafters in the industry today did not even experience these growing pains for themselves.

The AEC industry is again experiencing growing pains associated with changing their design process. It is important to keep in mind that moving from CAD to BIM is indeed a change, and it will require changes to your workflows and the methods you use to produce your designs. Studies have shown that companies which embrace the change and look for new efficiencies in the software are more satisfied than companies that change to new software but simply try to continue with their existing workflows.

You may have seen the chart below. BIM advocates will point out that the BIM workflow is likely to require more time spent earlier in the overall process and less time spent later. The advantage is that design changes are easier and cheaper to make if they are earlier in the process. If you can shift workload the curve to the left, you can become more efficient and therefore more profitable.





Others will add that the BIM workflow can require less time spent in the total process...that is, once you have your workflows ironed out and you are using the software comfortably, as well as taking advantage of additional efficiencies that weren't available in previous workflows.

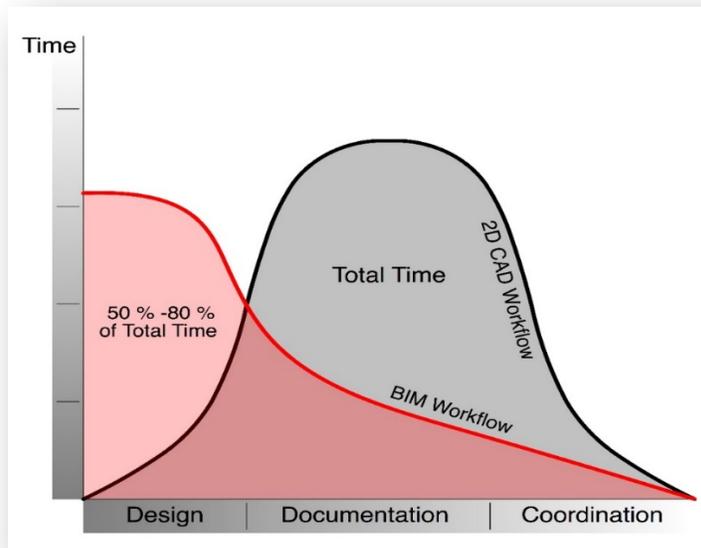


IMAGE FROM JARED BANKS, AIA, SHOEGNOME.COM

We would like to assert that you can shift this curve even farther to the left. Anything you can complete before you even have a project – i.e. do in your template – can save you time on every future project. Shifting your time and effort to the left on this chart can make your workflows more efficient and save you time in the long run.

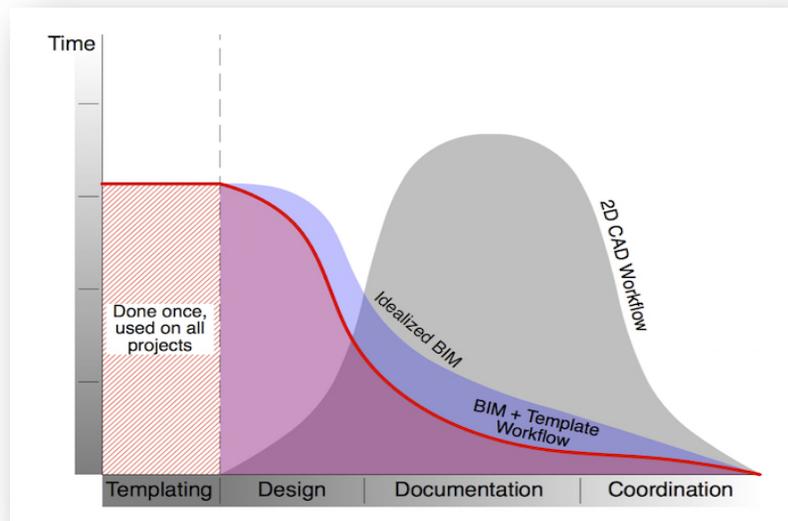


IMAGE FROM JARED BANKS, AIA, SHOEGNOME.COM

One of the first places to find new efficiencies is to look at any tasks that are repetitive and see if they can be shifted from requiring user input to relying on the software to complete these tasks. Do the sheets in your projects typically include the same sheet names and numbers? Do your projects always include schedules? Notes? Elevation drawings? These are some of the obvious items to automate; but don't stop there. Never stop asking yourself, *"What else can I automate?"*

Perhaps you already have your company's Revit template set up to include all the sheets that you typically have in a project. And you may already have the relevant views placed on those sheets with view templates assigned. Don't stop there. Never stop asking yourself, *"What else can I include?"*

Have you set your floorplans to automatically display fire-rated walls with a different linetype by using view filters? Do your floorplans automatically differentiate structural walls as soon as you draw them?

What if you could have the software automatically generate a list of all the furniture in each and every room – and it would automatically update with any changes? Or perhaps a list of each light fixture or electrical device in each room – including its panel, circuit, or data switch ID?

What if the software provided you with a schedule of the supply and return airflow in each room, and it automatically highlighted any rooms with too little or too much airflow? Or perhaps a floor plan that automatically colored those rooms with incorrect airflow or inadequate lighting levels, and the software could show this regardless of the size of the project?

Imagine if you spent your time creating your building design, rather than spending time on the administrative drafting tasks that you've become accustomed to doing in your 2D CAD drafting software.



Anything that you do repeatedly in project after project can usually be added to your Revit project template. The process of actually designing the building will remain up to you, but many of the repeatable tasks can be handled by the software.

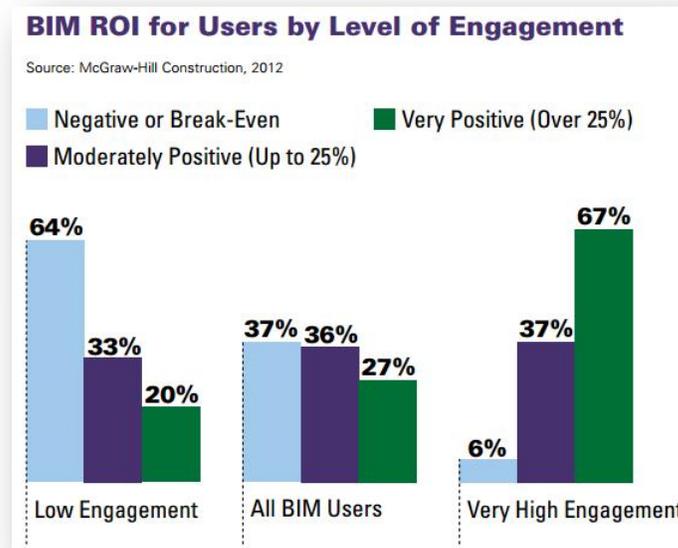
WHY should I spend time developing a Revit Project Template?

The more time you spend setting up your project template, the more time you can save over and over and over on each project. For example, if you have a luminaire schedule in your template, then as soon as you create the next project file the luminaire schedule is already done. You can spend time doing the task ONCE in your template, or spend time doing it in EVERY project.

“Sophistication with BIM breeds success. Eighty-two percent of expert users say BIM has a positive impact compared to 20% of beginner users. This could be attributed, in part, to the expert user’s ability to capitalize on more of the technology.”
- McGraw Hill Construction SmartMarket Report on BIM

Even if there are things that won’t be within the scope of each and every one of your future projects, you can still include them in your template. For example, perhaps most of your project designs are buildings less than five stories but you occasionally work on projects up to ten stories. You can include all ten levels in your template and then delete the unnecessary levels in the projects where they are not needed. It is much faster to delete objects than to create them.

Studies have shown that the more engaged a company is in its BIM process, the more it will gain. In other words, if you only seek to replicate what you did in your 2D CAD software without changing your workflows, then you will not see many efficiency gains – it is quite possible you will see the opposite. However, if you dig deeper and deeper into the BIM process and pull more and more from the model, then you are likely to see more gains from the additional time that you invest.



*GREATER BIM ENGAGEMENT YIELDS GREATER ROI
IMAGE: MCGRAW HILL CONSTRUCTION SMARTMARKET REPORT ON BIM*

WHAT can be included in my template?

The Revit project template that you are developing for your company [blatantly shameless plug; we can help with that] can include almost anything that you would do in Revit, as well as some things that you might not have thought of yet. One task that cannot be included in a template file using standard out-of-the-box Revit is creating worksets. But perhaps you can find a way around this. Dynamo anyone?

You will, of course, still need to create the actual layout of your buildings for each project.

The primary reason that we are able to create a building design in a short time within this session is that we have well-developed Revit template(s). The moment that a project file is created from our template(s) it already has many needed items ready and waiting. This allows us to spend time on creating the actual design of the building and not spend time on tedious drafting tasks or administrative tasks.

Every company will have different needs and will benefit from different tools in its template(s). The goal of this instructional demo is to show that shifting your time and effort “to the left” on the previous graphic i.e. sooner in your design process, can indeed save time on each project. One of the primary ways to do this is through a well-developed Revit template file. The exact tools that you include in your template will depend on your specific needs.



Some things you can include in the Revit template for your company include:

- Levels;
- Floor plans, ceiling plans;
- Elevation views, section views (or at least the system families for different section types);
- Detail views and legend views with typical details, notes, schematics, symbol legends, etc.;
- General notes, sheet notes, legends, startup screen;
- Schedules, including sheets lists and views lists;
(include schedules that you will print, as well as “working” schedules for internal analysis or review);
- Sheets (with names and numbers), placeholder sheets;
- View templates, view filters;
- Rooms or spaces with pre-defined properties;
- Project basepoint, survey point (don’t move basepoint after sharing your model);
- Gridlines originating at a specific location (e.g. your project base point);
- Placeholder links for the other disciplines (to retain preset visibility settings when replaced with the project-specific links);
- Print sets, printer settings;
- Electrical panel schedule template(s);
- Project parameters, shared parameters, global parameters;
- Component families such as:
 - Light fixtures, doors, windows, beams, etc. – basically any model object that is typically found in most of your projects;
 - Tags, symbols, title blocks, and any other annotation families you typically use, (Should some of the families include a “clearance zone”?);
- System families such as:
 - Customized walls, floors, roofs, handrails, pipes, ducts, text types, viewport types, etc.;
- Settings, settings, and more settings. These might include:
 - Object styles, copy/monitor, project browser sorting, sheet sorting, color fills, fill patterns, electrical settings, leader lines, keynote tag settings, default tags, energy settings.



Conclusion

While you may not be able to produce a set of documents for every project in 90 minutes, hopefully this instructional demo has shown that you can make the process faster if you are open to change and invest the time to make changes to your processes. Additionally, we trust that you've seen a few tools and workflows that you can take back with you to help save valuable time in project after project after project.

Feel free to connect with us if you would like more information or even assistance with customizing at your company.

Tony Crawford
Tcrawford@CAD-1.com
@RevitDork
[linkedin.com/in/tony-crawford](https://www.linkedin.com/in/tony-crawford)

Brian D. Juge, AIA
Bjuge@CAD-1.com
@RevitJuge