



## Beyond the Software: Transitioning Your Small Business to BIM

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**BO2501** By now, it's clear to all of us in the design industry that 3D modeling and intelligent design—Building Information Modeling (BIM)—is here to stay. You're probably hearing about it more and more often from your clients, customers, and maybe even your suppliers. But transitioning to a BIM workflow is a big step. If you don't have the resources of a multinational design firm, how can you make the leap? This class presents strategies for incorporating 3D software in your design processes, including budgeting, training, marketing, and implementation. You also hear the success stories of a few small firms who have moved to BIM and are now more competitive than ever.

### Learning Objectives

At the end of this class, you will be able to:

- Explain how implementing BIM can provide a competitive advantage
- Describe how to transition to BIM while keeping project commitments and budgets intact
- Identify flexible training and support options for making the transition to BIM
- Outline a step-by-step transition plan to a 3D workflow

### About the Speaker

Robert Silman Associates is a structural engineering firm with offices in New York, Boston, and DC. As the Digital Design Manager for the firm, Kate is responsible for coordinating procedures and standards for software used in the design process, including CAD, BIM, and design/analysis programs. Before rejoining RSA (where she also worked from 2003 to 2008), Kate was a Technical Marketing Manager for Autodesk, working on the AutoCAD family of products, specifically AutoCAD LT. She has over 10 years' experience with Autodesk products, and has been a highly-rated AU Speaker since her first AU in 2004.

## Introduction

Every time you turn around, somebody in the building industry is talking about BIM. More and more clients are asking about it, and more and more firms are making the transition. If you haven't made the move yet, you've probably got questions about the whole process. For instance:

- Why BIM? What's so special about this process anyway?
- What is this going to do to my budget? is it really worth the investment?
- How can I incorporate new software without going crazy?
- What if I can't do it on my own?

## Why BIM?

There are countless excuses for staying in 2D CAD instead of moving to 3D intelligent BIM.

- It's too hard.
- It's too expensive.
- I don't need it.
- My clients don't need it.

It's true that BIM doesn't solve every problem. but if you're in the AEC industry—architecture, engineering, construction—BIM can help. In fact, you're probably ready for BIM right now. Here's why.

### ***You already think in BIM.***

You might not know it, but you already use BIM—at least the “building information” part. When you're designing a building, you don't think in 2D lines. You think in real-world objects—walls, windows, doors, floors. You know how they fit together, what their relationships should be, what elements support other elements. And you know what? BIM does, too. Because BIM is object-based, everything in your model “knows” what it is. Walls act like walls, doors act like doors. They're not just collections of lines. This means that you can manipulate them in ways that relate to their real-world behavior, and that flow logically from your design workflow.

### ***BIM improves coordination***

In any building industry—architecture, engineering, construction—you need to be able to understand what's going on in three dimensions. If you move a wall in a plan, you need to know what that does to your elevations. If you change the size of your floor beams, you need to know how that affects your sections. BIM helps you manage that, with live sections and elevations that instantly reflect changes in other views. Yes, you might still have to chase a change through a few different views, but you'll immediately be able to see the changes—and that will save you time down the road.

### ***BIM takes care of the details***

In addition to the live section coordination, BIM also helps you with the housekeeping tasks for keeping a drawing set tidy.

Need to change a detail number? No problem: Just change it on the sheet, and every reference is automatically updated. Same if you need to change a sheet number or update a drawing list. (Imagine, no more coordinating sheet indexes!)

What if you need to change the scale of a plan or detail? Again, no problem! Simply choose your scale from the list, and all your annotations (notes, dimensions, fill patterns) will automatically adjust to the correct size.

### ***BIM is good for business***

BIM is not new technology anymore. In fact, Revit software has more than ten years' worth of history (although I'm not sure you'd recognize the earliest versions compared to today's software). As its adoption grows, you're probably getting more and more requests for BIM from your clients. Imagine if your response could be, "Oh, sure, I model in 3D all the time." Do you think they'd be impressed?

And it's not just about documentation. Having your building modeled in 3D provides an instant source for visualizations of the finished product. You can work with the in-product views, or use other software or services to create presentation-quality graphics straight from your model.

The building industry is becoming increasingly technology-driven, and BIM will help you keep up with it.

### ***BIM is an investment worth making***

Yes, transitioning to a BIM workflow is an investment, both in terms of time and money. Yes, there's a learning curve. Yes, you will probably spend more time on your model at first than you're used to. Yes, it costs more than the 2D CAD program you're using now. But how much is your time worth?

When you divide the cost of software by the number of hours you save with it over the course of a year, you may find that what initially seems like an expensive purchase is actually an excellent value.

Especially after your initial purchase, you can probably pay for the software maintenance/subscription with just a few hours of billable time per year. This requires a bit of long-term thinking because you will have to spend time learning before you can save time working, but don't forget the other ways you save time. Every coordination issue you solve in design is one that you won't get a call from the field about later.

## **Budgeting for BIM**

IT is a business expense. You can't get around it, so you might as well plan for it. Having a well-thought-out budget will help you do that. A sample budget might include:

- Hardware (new & replacement)
- Software licenses
- Consultant fees
- Training
- etc.

A good budget will include both one-time costs, like an initial license purchase, and ongoing expenses, such as subscription or maintenance. Speaking of subscription...

### **What is subscription?**

Different companies have different definitions, and a “subscription” at one place might be called a “maintenance” or “service contract” at another. Whatever it’s called, it generally means additional services on top of the basic software usage license.

And no, subscriptions aren’t free. There’s usually some sort of fee, often billed on a recurring basis—monthly, quarterly, or annually. You already bought your license—why pay extra? It turns out that when you add up the benefits of a subscription, you usually get what you pay for...and sometimes more. Here are a few reasons why you might consider putting software on subscription. (As always, read the fine print before you sign.)

#### ***You can stay current.***

The most common feature of any subscription/maintenance program is automatic delivery of upgrades or new versions. For engineering and design software especially, these may be critical updates. If codes or design guides have changed, you’ll want to make sure that your software takes that into account. Or maybe the developer has improved their calculation methods and come up with more accurate results. Maybe you have clients that always upgrade as soon as possible, and you need to keep up with file formats or features. Whatever the reason, you know you can’t afford to fall behind. And if you’re on subscription, you don’t have to.

#### ***You can get help.***

The second-most common subscription benefit is technical support. Anyone who’s used any kind of complex software knows that sometimes things go wrong that even the internet doesn’t know how to fix. If you have a maintenance agreement, there’s probably someone you can call, email, or contact through a web form and expect a rapid, personalized response. Small companies do this just as well as larger ones, if not better. They seem to work really hard to prove that they can support you just as well as the big guys, even if they don’t have as many people.

#### ***You can get extra stuff.***

Some subscription contracts come with access to additional programs that are separate from (but related to) your main purchase. One company provides extra cloud storage with your subscription. Another includes free passes to its annual conference in their training package. You might get access to members-only resources, or discounts on additional purchases.

You might not think that you’ll take advantage of all these extras when you first sign up. But on the day you need one, you’ll be really glad it’s there!

#### ***You can plan ahead.***

The final, sometimes hidden feature of subscription is that it lets you plan for the future. If you’re on subscription, you know how much you’re going to spend on a particular product each year. (Or each month or quarter, depending on how they break it down.) Often the cost of a subscription is substantially less than a new license or even an upgrade. If you plan to keep using the program for a while, you’ll break even in just a few years. There will be no big surprises in your budget because your most depended-on software package just released a major update. There’s less risk of lost productivity & billable time while you try to track down issues on your own or pay for pricy per-incident support.

Run the numbers yourself, and see which of your current software packages you should put on subscription or maintenance. It might not be all of them. But it may be more than you think.

## Getting Help When You Need It

Aside from the philosophical and financial considerations, there are a lot of technical issues that will probably crop up as you move through your BIM implementation plan. So where can you turn when you're not sure what to do next? Fortunately, there are entire communities of professionals ready to help when you need it.

### ***IT Consultants***

If your firm is big enough to support a full- or part-time IT manager, that's great news. But if you're not there yet, you can always hire it out. Plenty of professionals will work on an hourly or contract basis to help you through any infrastructure or hardware projects you have.

You probably don't change your own oil anymore...or if you do, you probably let the pros handle the brake pads. Even if you're comfortable maintaining your own computer & software, you don't have to do your network too. Divide & conquer.

### ***Local Resellers***

It's possible to buy a lot of software online these days. But if you buy from a reseller, you've got somebody local you can call up if you have a problem. Some of them even offer subscription contracts separate from software sales, so if you've already bought something on Amazon, you can still have access to local experts.

### ***Subscription Support***

Nearly all subscription and maintenance plans include some kind of support. So if you're on subscription because you want to get free upgrades, or for another benefit, you might already be paying for support. Put that contract to work! Of course, this is more for troubleshooting than training. If you can't get a particular feature to work properly, subscription support is a good place to turn. If you're not sure how it works in general, there are better resources.

### ***Social Media***

Thanks to the internet, you have access to the expertise of thousands or even millions of your peers any time of the day or night. Between slogs, discussion forums, LinkedIn groups, Twitter, and Facebook, the odds are good that you can find somebody out there with the answer to your question. It may have even been answered before, so that all you need is a Google search.

Before you go wild posting a ton of questions, here are a few netiquette tips to help you get good, timely answers.

#### ***1. DO search first.***

Chances are good that if you're having trouble with your software, someone else has had the same problem. And if you can't figure out how something works, there's probably someone else out there who couldn't either.

So before you post anything, run a few key words through your favorite search engine. Your exact question might be out there & answered already, and you'll have your solution faster than you could write a post of your own.

**2. DO be specific.**

If you decide you need to post a question, provide as many details as you can. These might include (but are definitely not limited to!) the following:

- What feature/command/tool are you asking about? And what, *specifically*, do you want it to do?
- Are you getting any error messages? If so, what do they say?
- Is the problem in one file or in all?
- Do you know when it started? Did you change anything on your computer before that time?
- Can you replicate it, in different files or on different machines? (This one's especially important for bug-related questions.)
- What are your system specs—operating system, video card, amount of RAM, etc.?

If you can, use the jargon of the program. (That “little blue box” probably has a name.) When software has a vocabulary all its own, using the program-specific terminology will help people understand you. (And if you can't be specific, be descriptive!)

Also, if you're new to a forum, include your experience level in your post. It's okay to be a novice user, but knowing that will help other members of the group tailor their response to your level. And if you're an expert, say so—but be sure to back it up with details of all the fixes that you've already tried that haven't worked. If you've already been through half a dozen troubleshooting steps, include those in your post so others don't waste time suggesting things you've already done.

**3. DON'T be too specific.**

Yes, you should include as much detail about your *problem* as possible. But you also want to keep any identifying information out of your post. No client names, no addresses, no project locations—take all of those out before you ask your question. Be careful before you post a sample file, too. If it has anything proprietary in it, take it out before you put the file up on the internet. And it should go without saying, but never include your software's serial numbers in your posts, even if you're asking about installation issues.

**4. DO keep it professional.**

No matter how much you might actually yell at your software when it misbehaves, keep your anger out of your posts. Criticism is fine, but try to avoid a rant. Going off on a rampage will just discourage others from reading your post, and they might miss whatever point you're trying to make.

**5. DON'T get impatient.**

Most discussion groups are set up as peer-to-peer support. This means that most of the other posters have day jobs, just like you, and don't necessarily spend all their time monitoring the forums. If you're lucky, you might get an answer in a couple of hours. Sometimes it might take a day or two...and sometimes you might not get an answer at all. If that happens, take a look at your question. Did you follow all the do's and don'ts? If not, rewrite it, and try again. If you did...maybe it just wasn't your day. Don't get discouraged—there are plenty of forums out there, and a little patience (and some trial and error) will pay off in the end.

## Making the Transition

Congratulations—you've decided that it's time to make the move to BIM. How do you actually get started?

### *1. Look at your schedule.*

The learning curve for BIM software can take up a little extra time on your first few projects. Do you have some projects wrapping up soon that will free up a bit of time in your day? Is December usually a slow month, or January? Is your local reseller offering a training class that you have time to attend?

### *2. Look at your budget*

BIM doesn't always require an initial cash outlay. Many programs offer free 30-day trials, and some are even available as a rental. Will you need any new hardware to support BIM software? Thinking about the learning curve, can you afford to absorb some non-billable time?

### *3. Pick your software.*

Yes, this at AU, but Revit isn't the only BIM software out there. Do your research, and figure out which is the best fit for you and your clients.

### *4. Pick a pilot project*

Do you have a client that wants to move to BIM? Is there a new project starting that looks like a good candidate for BIM? New, steel-framed buildings—not renovations—with a consistent column grid and regular floor plans often make good candidates. (Depending on your business's focus, you may have several projects that would be a good fit...or none, in which case you'll have to set your own criteria.)

### *5. Jump in.*

Just kidding. Going 100% BIM on your first project may not be the smartest strategy. Instead, here's one way you can go from 2D to 3D without getting flattened along the way. Note that this is just one way of many—there may be other techniques that you will want to adopt to help smooth your transition.

## **Sample Transition Plan**

One way to transition to BIM is to pretend it's mostly a 2D program at first, and just get used to using the tools for building elements. Then, as you get comfortable with the software, you can move on to the "I" in BIM—information—and add schedules and keynotes. Finally, you'll be able to cut real, live, 3D sections showing complex connections and coordination details.

### *1. Start with floor plans*

Floor plans, even in Revit, can essentially be 2D views. It's maybe more like "2.5D", because you'll need *some* 3D information, such as levels, in your model, and you'll use those to place walls and columns.

Floor elements will be placed flat on a level, just as if you were creating a 2D CAD plan. Even if you don't have full 3D capabilities, you will still be able to take advantage of 3D grids, intelligent tagging of elements, and smart dimensions. (Note: If you use this method, continue to send CAD files—exported from BIM—to your clients and consultants. You can't use a 2.5D model for 3D coordination.)

### *2. Add schedules*

Schedules represent an amazingly powerful BIM feature, because they draw on the *information* in the model. All the data that you used to enter into tables by hand—such as size & reinforcement for footings, walls, beams, and floors—can now be extracted directly from the model and put on a sheet.

### 3. *Cut sections*

You'll notice that this section isn't called *draw* sections. When you're modeling in 3D, you can *cut* a section and the geometry will already be there. Of course, this level of BIM does require that you've accurately modeled your elements in plan and elevation—true 3D instead of the 2.5D of step 1. Getting to a fully-developed model is often more work up front than a 2D drawing, but it pays off in coordination and a real understanding of element interactions.

### 4. *Take it to the limit...wherever that is*

Creating construction documents is merely one use for BIM. Once you're comfortable with that, you can explore linking your models to analysis and design programs. You can link models together and run clash detections to identify and eliminate field coordination issues. You can create photo-realistic renderings to impress clients.

Whatever use you can imagine for a 3D intelligent model, you can probably accomplish with BIM.

## Conclusion

It's true that moving to BIM isn't easy...but you can make it worth your while. With a financial plan, thoughtful transition strategy, and access to local and online support, your small business can make the move to 3D intelligent building design.