

How TLCD Pioneered Adoption of BIM

Part Three of a Three Part Series

Studies in Success

Company: TLCD Architecture

Software on Board: Revit® Architecture, Globe Link Plug-in for Revit, AutoCAD®, Autodesk® 3ds Max® Design, Google SketchUp Pro, V-Ray for SketchUp from ASGvis, LLC, Google Earth, GoToMeeting, modo® from Luxology, LLC, Adobe® Creative Suite®, Microsoft Office Suite

Recap of Part 2

By 2002, new TLCD projects were being modeled in Revit. By 2006, BIM was the firm's core methodology for project delivery. The well-known advantages of consensus building and collaboration solidified the firm's commitment. TLCD also found that the visualization, scheduling, analysis and phasing capabilities of Revit underpinned many successes.

In Conclusion

As TLCD looks to its future, the many uses the "I" in BIM provides are an indicator that the information aspect will continue to grow in importance.

BIM Provides Realism, Early in the Design Process

Alan Butler, Sr. Principal, TLCD, offers the example of a Math and Science Building Revit model that TLCD prepared for Santa Rosa Junior College. The firm was able to imbed information into the early conceptual model that would live with the project from inception to construction, including room data sheets, furniture cut sheets and other programming information.

In Revit, at a very early stage the TLCD design team was able to create highly detailed, realistic and precise room diagrams. They could establish an accurate envelope for the building then enjoy the flexibility of moving the diagrams easily, arranging them to establish correct adjacencies.

Revit Generates Statistics toward Funding

Another use for the "I" in BIM is the ability to generate building statistics such as assignable areas, building efficiencies and other statistical information.

The funding process is driven by statistics. Agencies want and need to know how efficient the building is, how much square footage is dedicated to various areas and so forth. TLCD is able to imbed information and statistics about the project into the model, data that live with the project all the way through the process.

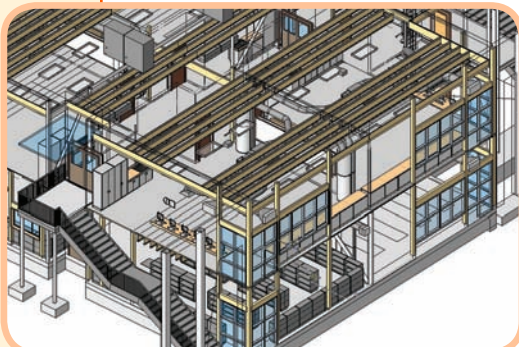
Revit Encourages Collaboration with Live Updates

In any given TLCD project, a number of consultants are likely to be involved. The leadership role of the TLCD design team is to orchestrate the work of consultants in harmony. Revit provides a basis for that harmony.



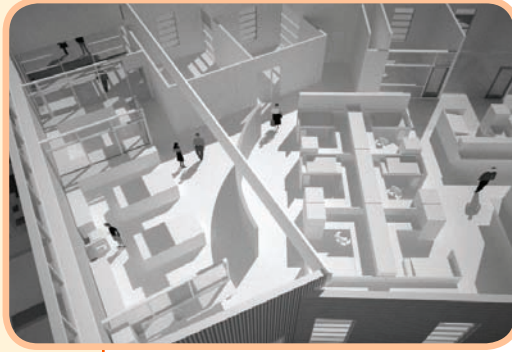
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According to Butler, Revit allows TLCD architects to communicate interactively with consultants via GoToMeeting so they are all contributing to a common model, a model that the entire team can access simultaneously.

Butler offers the example of talking with a couple of engineers, each in a different location. Together, TLCD and its consultants can make changes to the model over the phone. They all look at the same thing at the same time and make changes live, changes that all involved can access. They see ducts and conduits as they all live together in a 3D building model, much as all the elements of the building will exist in the real world.



By comparison, the pre-Revit communication with consultants could be tedious and error-prone. Each specialty used to layer their drawings. For viewing, the team would overlay physical pages on a light table to see how the pages related.

Now, no one has to drive an hour to look at a change or wait to publish a set of plans and mail them. The right here, right now capability is an enormous advantage.

Revit Provides a Realistic, Constant Reference Point

With Revit, decisions are made and implemented throughout the model. The effects are visible immediately. Revit is constantly updating to show you what the whole project looks like. The model is a great constant reference point. It is realistic and has a level of detail that resembles construction, including glass with thickness.

“You have a single information source that is very connected to processes down the road.”

**Nate Bisbee, Design Director,
Lead Architect, TLCD**

At attachment points in particular, in the realm that is of special interest to structural and mechanical engineers, TLCD employs Revit's Interference Check to scan the model for collisions between elements.

“You have a single information source that is very connected to processes down the road,” explains Nate Bisbee, TLCD Design Director and Lead Architect on many projects. “We are working representationally and three dimensionally in a single source. When the building is in its planning stage, this is very powerful.”

Bisbee also notes that while not all advantages of BIM can be quantified, the industry is coming around to what TLCD has been practicing, and he sees that as an indicator.

Revit Gives Users an Opportunity to Explore New Options

“Yes, it takes a while to get proficient,” Bisbee says. “Once you are proficient, you can spend more time exploring options. You can contribute more to the project. We are now exploring energy software. We are taking advantage of more and more possibilities with the model. With our Napa Valley College Learning Resource Center project, for example, the construction documents were all completed with one BIM model.”

In Bisbee's estimation, Revit is dimensionally stable. When the software works as intended, it works perfectly. You don't get dimensional errors. Your dimensions are credible and are real objects in space, not lines and numbers.

The Revit BIM Model Works for Design, Construction and Operation

In the past before BIM, a standalone bound Program Document was created. Information of interest to the (mechanical/electrical/plumbing) engineers who needed to know adjacencies, statistics and characteristics, extensive information about every room, used to require a search of the program document. There was no other way to know whether one room might need humidity control or other specific features.



The book was likely to be left on a desk and not seen by everyone who would be affected by the information in it. The information was also subject to change and change required cumbersome processes.

Now, with Revit, the information can be imbedded in the model. It is available instantly to everyone involved in the project no matter where they are located. It is also accessible not just to the designers but for those who will own and operate the building in the future.

Revit Looks to a Seamless Future

With the modeling capabilities of Revit, TLCD is able to design buildings that would have been future fantasy with pre-BIM technology. The future is one where integration of BIM into the design process opens new possibilities for a seamless transition between design and fabrication, between designer and fabricator. TLCD is currently using a process where specific contractors assist during the design phase. The firm looks forward to a not too distant future when interoperability permits the Revit model to guide the machining and manufacturing processes for building elements.

As Alan Butler says, “The ‘I’ in BIM is what we see as its most significant advantage.”

And as Guy Messick, TLCD’s Director of Design Technology concludes, “Design is an innovative process to determine the best way to arrange elements, and Revit is the tool that TLCD uses to implement the design.”

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—Guy Messick, Director of Design Technology, TLCD

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