

A/E RISK REVIEW

A PUBLICATION OF THE PROFESSIONAL LIABILITY INSURANCE NETWORK



FINANCE INSURANCE, LTD.
Quality Service For Your Insurance Needs

VOLUME 66, 2006

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The Rewards and Risks of BIM

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Building Information Modeling – or BIM – has been touted as the design tool of the 21st Century – the biggest thing since sliced CAD. Proponents exclaim that it enables architects and engineers to create detailed three-dimensional models that take the guesswork out of design intent and construction. Project owners like it because it enables them to better visualize the completed project and provides a 3D blueprint for continued building operation and maintenance.

BIM truly presents great promise. But with any new process or technology comes great risk as well. Is BIM truly all that it's cracked up to be? What rewards can the designer and project owner really expect? What are the drawbacks? And just how quickly should design firms jump on the BIM bandwagon?

The Benefits of BIM

First things first: What exactly is BIM? The definition remains a bit unclear due to the fact it is an evolving concept. What is clear is that BIM is a lot more than just the ability to produce conceptual 3D models.

The key to BIM is the "I" in the middle: Information. BIM is centered on the development of a single project database that contains complete project data, both graphical and nongraphical. That includes all architectural and structural information as well as electrical and mechanical systems and other "real-world" data. Designers can also create links from the

database to outside information resources, such as manufacturer specifications.

By having all project information contained in a single, continuously updated database, the theory goes, it is easier to manage the accuracy of data and integrate all aspects of the project during the design stage. This leads to better specifications, estimations, budgets, schedules and compliance, as well as the ability to produce detailed 3D models and simulate construction.

From the owner's perspective, BIM offers the promise of a high quality project, as well as time and cost savings. The 3D models enable project owners to gain a better understanding, early in the design process, of how their final project will look. Design issues can be addressed early on with the prime consultant. If revisions are made, the database and model are updated as necessary and changes are automatically integrated throughout the process. This should lead to fewer surprises, errors and omissions. Plus the owner benefits by having more detailed models and schematics on hand for ongoing operation, maintenance and renovation of the project.

During the construction phase, contractors should now have more complete data as well as a more effective representation of design intent. In the end, there is a greater likelihood that the finished project will look like the completed design.

Design firms that become proficient with BIM have the ability to substantially increase their scope of services and their fees. They become candidates for more projects as owners increasingly demand BIM services. Truly, all parties to the design and construction process can benefit greatly as the promise of BIM is realized.

Do Risks Outweigh Rewards?

Indeed, the promises of BIM are attractive. However, as with any dramatic change, there are substantial risks. These need to be weighed carefully before jumping into BIM with both feet.

Becoming proficient in Building Information Modeling can be a long and costly process. It demands buying and becoming familiar with new software programs. This typically means substantial training for your staff – and we're not just talking about the drafters and designers sitting at the computer. BIM requires a substantial shift in the overall design process. Everyone from top executives down needs to understand BIM and how it changes the design process. Subconsultants, contractors and subcontractors also need to be on board to gain the full benefits of online collaboration.

BIM changes the dynamics between you and your clients. Project owner expectations can soar and need to be carefully managed. Your clients may anticipate faster, error-free and therefore lower-cost projects. They need to be educated that BIM will likely result in higher design fees to reflect your increased scope of services and increased level of responsibility in managing project information.

BIM also changes your relationship with subconsultants, contractors and other parties to the design and construction process. Because you are managing the compilation of and access to project information from multiple sources, lines of responsibility are blurred. There are no unified industry standards regarding how BIM projects are managed and who is responsible for what. Your initial ventures into BIM are especially fraught with danger. You can expect missteps, redundancies and gaps in performance until parties become experienced and comfortable with the new design process.

With your first BIM projects you can expect resistance to change, both within and outside your firm. People don't like being asked to perform outside of their comfort level, and BIM can be a threat to those who are still struggling to feel comfortable with CAD and other new technologies.

Liabilities and Insurance

One of the biggest unknowns with BIM is how it affects your professional liabilities and how the insurance industry will handle claims on these projects. BIM is indeed still in its infancy and there are few precedents to help insurers, attorneys, judges and juries sort out responsibilities in the event of a claim.

Even though BIM holds great long-term promise in reducing project errors and omissions, most in the insurance and design industry agree that BIM may actually increase the design firm's liabilities in the short term. New processes are rarely adopted without trial and error. The prime designer now compiles and manages virtually all project information. Contractors and others who rely on the prime for complete and accurate project information will likely point fingers at the prime when project upsets occur. There are also liability issues regarding ownership of that information. What if the design firm inadvertently reveals trade secrets or proprietary information when sharing project data? What rights does your client have to use project information for future operation and maintenance?

Current laws, standards and legal precedents are based on a system of design and construction that has changed little in decades. Because of the dramatic shift in how information is gathered, used and shared using BIM, those standards may not apply. The distinct separation of roles among primes, subconsultants and contractors has been blurred and it will likely be decades more before new insurance and liability standards are developed. Meanwhile, BIM and other high-tech approaches to design and construction will continue to evolve at a rapid pace. The insurance and legal fields will be challenged to adapt to current practices while continuing to play catch-up as new standards develop.

What Are Design Firms to Do?

How quickly and completely design firms will embrace BIM as a design process will depend on a variety of issues. Take into account these factors when analyzing BIM's place in your future:

Company philosophy. Is your company a leading-edge risk taker with a bent toward high technology or a more conservative firm that would rather follow than lead the pack? Consider how readily your firm adopted CAD as a primary design tool. This should give you an

indication of how readily you can integrate BIM into your future.

Management commitment. How committed is top management to BIM? Principals must be completely behind BIM and be willing to make the necessary investment. Management must set the tone and lead the fight against resistance to change. Staffing, training, hardware and software purchases and the use of outside consultants are typically required in order to transform the way you deliver projects.

Client readiness. How much of your current and projected client base is demanding – and willing to pay for – BIM as the design process of choice? This factor goes a long way to determining how quickly BIM is adapted by your firm. If design-build project delivery and/or highly innovative designs are a big part of your future, so is BIM. If your clients and projects are relatively traditional, then BIM may not be a big part of your upcoming plans. Regardless of how many of your clients choose BIM, managing their expectations is vital. Don't oversell the benefits.

Risk awareness. Are you prepared to address the added risks and liabilities that may accompany BIM? As you venture into a new design process, the tried-and-true staples of risk management become even more important. Client and project selection are critical. Protective client contract language regarding the control, use and distribution of information, as well as intellectual property rights, is essential. Communication with your client, the contractor, subconsultants and subcontractors is increasingly key. All parties should commit to addressing problems early and often so that disputes can be resolved as quickly and painlessly as possible.

As your insurance advisor, we can help you sort through coverage and insurability issues related to the expanded scope of services you might provide with BIM. While this area is still evolving, taking prudent action and following the basics of loss prevention can go along way to making your venture into BIM successful.

Can We Be of Assistance?

We may be able to help you by providing referrals to consultants, and by providing guidance relative to insurance issues, and even to certain preventives, from construction observation through the development and application of sound human resources management policies and procedures. Please call on us for assistance. We're a member of the Professional Liability Agents Network (PLAN). We're here to help.