



## *BIM There, Done That: Creating Contracts That Capitalize on New Technology*

by James Yand and Tara O'Hanlon

Six years ago, building information modeling was for cutting-edge contractors who wanted their projects to ride the technology curve. In 2007, only 28 percent of contractors, architects, owners, and engineers reported using BIM on their projects. By 2012, the percentage had grown significantly, and the same group reported a BIM adoption rate of 71 percent.



For example, J.E. Dunn Construction, a large national general contractor, has gone paperless with the use of its on-site kiosk computers, laptops, and tablets using BIM; and its subcontractors are going paperless alongside it, using the same BIM technology. Although J.E. Dunn uses this technology on multimillion-dollar projects, its success on small projects around \$200,000 originally spurred widespread adoption of BIM technology.

BIM is the new normal. So much so that ConsensusDocs and the American Institute of Architects have introduced standard form documents addressing it (ConsensusDocs 301 *BIM Addendum* and AIA E202-2008: *BIM Protocol Exhibit*). Surprisingly, surveys indicate that standard form

use, incorporated into construction contracts, trails the growing popularity of BIM.

As with many other technological tools, risks increase with the improper use of BIM. Standard documentation that adds BIM language to existing contracts can help ensure that all parties adequately understand and allocate associated risks and responsibilities, while better capturing the tool's efficiencies. Moreover, a written standard offers participants assurances and protections that may lead to better use of BIM and encourage broader adoption.

### **Protect Efficiencies with Documentation**

The nature of BIM calls for contract language that can protect participants' interests in a project. BIM technology uses a multidimensional computer model to create a virtual project before beginning construction. At its best, BIM seamlessly integrates all phases and elements of construction, including planning, design, and operation. The bottom line is that efficiencies in the process lead to cost and time savings, and thus, increased profits.

### **Subcontractors are critical in creating and capturing BIM efficiencies.**

Subcontractors are critical in creating and capturing BIM efficiencies. By inputting information into the model, subcontractors can help evaluate plans and designs, troubleshoot potential problems,

schedule project elements, and make modifications more efficiently. BIM offers more effective communications among all parties because each one is working from the same model and "speaking" the same language.

### **Contract Elements to Consider**

Standard forms are critical to BIM project communications because they help address basic concerns, such as who will own, manage, or run the model. The forms also identify responsible parties for each element and who can rely on the model for what purposes. The standard language specifies that architects and engineers bear responsibility for the project design, regardless of any contractor or subcontractor's greater input as a result of BIM.

Once a contractor chooses to incorporate BIM contractually, BIM language must be melded into its standard contract and into a project's various agreements to ensure that similar BIM-related rights and obligations flow throughout. Factors to consider include the number of models, model management, intellectual property rights, data management, responsibility, and confidentiality. If the language is not incorporated, the legal terms of the BIM protocol could conflict with the primary contract's existing clauses.

The contract should address the number of models created and the relationship between the models and 2-D drawings. If multiple models are used, the contract should indicate which model takes priority in case of conflict. The parties to the contract should also agree on the content and format of each model and the standard language to employ.

## Responsibility Influences Quality

To ensure the quality of contributions to a model or models, as well as the level of reliance to be placed on them, it is necessary to define a responsible party. The powers and responsibilities of each involved party should be defined in the contract or in other written policies. In the area of model management, the key is to designate a specific person and/or organization to oversee the process and delegate responsibility for each aspect of the model, including access to the model, scope of services, software matrix, and archiving changes. To avoid conflict, the manager's explicit role should include exclusive responsibility and power to issue binding instructions on BIM-related issues. The project owner often minds these issues, but a general contractor may be suitable in a "Design and Build" contract.

It is particularly important to identify who is responsible when a model contains intelligent objects — those parts of the BIM model that react to other inputs and that might change on account of information derived from other contributors. AIA divides the construction process into five standard levels of development and limits liability at each stage of construction. The ASA-endorsed ConsensusDocs limits liability of parties to the contributions they have made. Both documents seek to limit liability to parties in the contractual chain.

Finally, confidentiality of information shared during the BIM process could be guaranteed by a simple confidentiality and nondisclosure clause in a contract. BIM users should also contract for restrictive rules of access, copying, and transmission, particularly to protect competitive data containing trade secrets; such data should be held and accessed in a manner that does not compromise the owners' interests.

## Allocate Intellectual Property Rights

Addressing intellectual property rights and data management is critical. For example, BIM users may

face issues with joint authorship, in which two parties make distinct additions to the model, but it is not possible to separate one contribution from the other. The AIA language provides that the Model Element Author (a term defined in the contract) bears responsibility for the content and level of detail in that element of the model. The ConsensusDocs language similarly provides that the original contributor's intellectual property rights are preserved regardless of another project contributor's additions, and there is no joint authorship.

A second and seemingly better approach is to embrace the concept of joint authorship while preserving liability limits of the original contributor. An agreement may define joint authorship to recognize the right of the original author to accept or reject any addition, protecting the original author from liability for errors resulting from additions made without consent. If consent were obtained, joint authors would hold rights to the contribution as well as bear joint and separate liability.

## BIM's Future in Litigation

When adopting BIM, parties should carefully consider potential legal issues to minimize adverse legal consequences while facilitating collaboration. On the one hand, BIM's purpose is to streamline communication and efficiencies to reduce litigation and insurance claims and their associated expenses. The unfortunate reality is that construction disputes on BIM projects do occur.

In 2011, a contractor sued an owner (who sued other parties) in a multimillion-dollar action for the construction of a life-sciences building at a major university. The parties were using BIM, which showed that the building fit together perfectly, but the designer did not tell the contractor that the building had to be constructed in a specific order. The contractor approached the project out of order and ran out of space after completing about 70 percent of it. The parties settled the dispute, but the **case** emphasizes the need for traditional communication while using BIM and the potential pitfalls of new technology.

The challenge in developing BIM contract language is to anticipate potential legal issues. For instance, the technology on which BIM is based may create liability issues. Software manufacturers are protected by blanket limitation-of-liability clauses that make it difficult to transfer the risk of BIM errors to them. Therefore, this risk should be allocated contractually and be borne by the party who takes responsibility for the BIM process. The parties should carefully map out the liability between consultants who choose the BIM technology and have expertise, and the owner or manager of the BIM process. The aim should be for the consultants to bear the risks for technology errors that could have been avoided with proper care and diligence, and for the residual risk to lie with the process's owner.



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BIM systems are likely easily converted into a tool that can help recount what happened in a dispute to a mediator, arbitrator, judge, or jury, but it is not yet clear whether parties may use BIM in litigation. Litigation expenses often include the cost of creating expensive, visually appealing models to help outside parties to understand a dispute. BIM may be a useful tool in achieving that influential visual at no added cost. Of course, the use of BIM in legal disputes could dampen communication and collaboration between parties, so some project teams may elect to control the use of BIM in litigation through contractual restrictions. Finally, it is important to ensure that the parties take out appropriate insurance to cover their engagement in the BIM process. Project insurance that includes BIM risks should be adopted if available.

## Diligent Planning Produces Powerful Results

The landscape of professional practice and construction will continue to be driven by technology and the use of BIM. The risks associated with BIM are outweighed by the benefits, particularly if planning and adoption of contract language are carefully executed. Many issues can be addressed through a standard amendment incorporated by reference into the various contracts in use in the industry. It is also possible for contracts to address BIM's potential use in any litigation. By laying the proper contractual groundwork, contractors can minimize risks and ensure successful, BIM-powered projects.

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