

# **BIM Legal Risks – An Overview**

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Building Information Modeling (BIM) use is both evolving and on the rise, with more and more projects using BIM in a dynamic, collaborative way to benefit a wide array of construction projects. Building Information Modeling, or, BIM, is described by Autodesk as “a process that involves creating and using an intelligent 3D model to inform and communicate project decisions.” Wikipedia defines it as “a process involving the generation and management of physical and functional characteristics of places.” National Building Information Model Standard Project Committee defines BIM as “a digital representation of physical and functional characteristics of a facility. A BIM is a shared knowledge for information about a facility forming a reliable basis for decisions during its life cycle; defined as existing from earliest conception to demolition.” Regardless of which definition is used, BIM use raises issues that impact the contracting process and call for assessment and management of the risks involved.

While the definitions may vary, BIM inevitably uses technology to generate digital representations (models) of a project toward the goal of greater efficiency, higher quality, and better project communication. Ideally, BIM provides an opportunity for collaboration by the project stakeholders to insert, update, or modify information in the project model at various stages through the lifecycle of a facility. The primary difference between 2D drawings and BIM of any sort is that BIM is parametric – the elements in a model are intelligent. Thus, modification of one model view automatically updates all other views to reflect that change. If a designer wants to move a window, moving it in the model changes all of the surrounding features accordingly, and updates the window schedule.

These features, both in small scale, “silo” BIM (e.g. BIM uses by a single subcontractor or supplier for its own purposes) and in collaborative BIM have the ability to greatly reduce design errors, identify existing errors earlier, to improve communication of changes, and to prevent conflicts. BIM is particularly useful during constructability review, where clash detection/special coordination efforts are more easily accomplished by the overlap of models, which allows resolution of both hard clashes (when two components physically overlap in the same space), and soft clashes (where components violate space constraints imposed by code or design limitation – e.g clearance or egress requirements) to be developed during the design phase, rather than during construction. It also allows for comprehensive code checks much more efficiently than traditional methods.

The impacts of BIM extend beyond a better 2D model – it offers not just 3D, but also can model cost and scheduling impacts (“4D”) and enhanced facilities management, even through decommissioning (“5D” – for other metrics to be measured). This paper will provide an overview of some of the legal issues raised by BIM use and provide some guidance on how to best allocate of risk so that the parties may focus on meeting project BIM goals and expectations.

#### **A. BIM v. Spearin**

The primary risk concern that arises with collaborative BIM use relates to whether or not the use of BIM alters the traditional responsibility and liability exposures allocated among owners, designers, contractors and suppliers. Indeed, the clear divide articulated by the Supreme Court in the case of United States v. Spearin between design professionals being responsible for design and contractors being responsible for means

and methods, has been facing challenges ever since it was published in 1918 - but no modern development so clearly calls for clarity in contracting as BIM use.

With the introduction of increasingly integrated project delivery methods including design/build and integrated project delivery contracts, and increasing contractor roles in such tasks as constructability reviews, value engineering, designs included in RFIs and change orders, drafting of shop drawings, and the use of performance specifications, contractors run the risk of blurring the lines between design responsibility and means and methods. The simple principle articulated in Spearin, provided that:

. . . if the contractor is bound to build according to plans and specifications prepared by the owner, the contractor will not be responsible for the consequences of defects in the plans and specifications.”

United States v. Spearin, 248 U.S. 132 (1918). While the holding in Spearin may be simple, BIM raises concerns that due to the very nature of the collaborative process, the once clear delineation of responsibility between design and construction may be irrevocably blurred.

In reality, while there are significant changes to certain aspects of practice, such as an evolving standard of care, there is little that cannot be effectively addressed with diligent contract practices and the identification of deliverables appropriate to the contractor, and provided that all stakeholders remain accountable to their assigned roles and scopes. Well drafted contract language which preserves traditional roles is entirely consistent with the use of collaborative BIM and the related technologies. In fact, in both the ConsensusDocs BIM Addendum and the AIA BIM documents (G202, G202 and E203), functions traditionally performed by design professionals and contractors are preserved – it is the method of getting there (technology) that changes, allowing for the

delivery of detailing and other matters to be provided far earlier in the process. Thus, the concern of whether those lines are blurred can be addressed with appropriately drafted contracts with clear roles, responsibilities and deliverables.

### **B. Times Change**

One of the most significant changes to a project that utilizes BIM over a traditional, non- BIM project is the ability for parties to provide more and better information earlier in a project. Traditionally, a design team prepared their design and delivered it to a contractor in the form of contract documents. The contractor would then prepare shop drawings and submittals based upon the contract documents.

In a BIM world, the ebb and flow of work is more fluid. As the design team produces models, so too are the contractors modeling their work. Depending on the extent of the collaboration, there is the potential for the design team to rely upon the models being prepared by the contractors for their area of work, and incorporate it into what then becomes part of the contract documents. In this scenario, designers may be relying upon modeling provided by the contractors – a reverse of the traditional timing of production. In this case, care should be taken to use clear process controls to establish the required granularity and the proper use for models at various stages of development.

### **C. Control Over Model Contributions**

Because the models produced in a fully integrated BIM project involves the exchange of digital models between stakeholders, care must be taken to assure that control over the individual models is preserved by the contributors to the model, and that changes to the models are made by the individual contributors. This allows the parties to assure that design decisions are made only by those responsible for design, and for those

decisions and changes to be properly documented within the models, and likewise for means and methods decisions to have changes documented in their own models. For any derivative models that are to be prepared under the execution plan, preserving the base models, and assuring that access to create derivative models is only offered to the parties requiring access to create derivative models.

A related concern involves the role of “model manager” (term used by AIA) or “Information Manager” (ConsensusDocs). The individual or entity selected to play this role is the party responsible for BIM Information Management. Although the role may vary from contract to contract, depending on the extent of BIM use and the BIM project goals, this is the party generally responsible for “the measures that protect and defend information and information systems with respect to the availability, integrity, authentication, confidentiality, and non-repudiation. These measures include providing for restoration of information systems by incorporating protection, detection, and reaction capabilities.” See, ConsensusDocs BIM Addendum, Sec 3.2. This role, however defined in the contract, is critical to the success of a BIM project – and in the event that there is no IM assigned for the project – those roles would need to be assigned through someone’s scope of work in order for the collaboration to be effective. Because the role is often assigned to the party best suited to manage the technology, that role is sometimes not part of the design team. In those circumstances, it would be prudent to carefully consider how the BIM risks being undertaken by that subcontractor should be compensated and insured.

#### **D. Rights of Reliance**

Concerns can also arise due to the tension between the right on one hand for stakeholders in the project to rely on electronic data (in the form of models and model content), and on the other hand, the right for contributors to be protected from the use of electronic data by others as models are exchanged. Without the right to rely on the data contained in any given model, the value of BIM use on a project is greatly undermined, and the efficiencies and collaborative uses that BIM has to offer can be dramatically curtailed. On the other hand, model contributors have a legitimate concern regarding (1) the use of models/model data in a derivative model; (2) the potential for errors in transmission of models between project participants; (3) the potential alteration of a model by a subsequent user; and (4) exposures created by re-use of models for purposes not originally anticipated, or on new projects.

Having this issue addressed in the contracting process can mitigate many of the concerns raised by model use and encourage collaboration. In particular, these issues can be addressed in the contract by (1) clarifying which models, if any, are design deliverables; (2) clarifying which models, if any, are contract documents; (3) agreement on archiving requirements to assure preservation of original, models; (4) clarifying the extent of re-use permitted; (5) considering waivers of consequential damages for contributors for their model contributions; (6) considering model ownership rights; (7) considering indemnity/hold harmless agreements for use of models after project completion for the same project, or for re-use on another project (for which the modeler may not be a participant).

## **E. Intellectual Property**

Intellectual property rights can be different from traditional projects. In addition to the intellectual property issues concerning the hardware and software being used to create and read models, the question of who owns any model or models must be addressed. Under traditional legal analysis, unless otherwise stated in the contract, the creator of a work, including a model, is the owner of that model under copyright law. Because most of the models in use in a collaborative BIM environment are derived in some part from data produced by other contributors, the “ownership” of models in reality is much more complex. By way of example, if one modeler incorporates aspects of another contributor’s model or data from that model into its own model, the original modeler retains some rights of ownership in the derivative work. While this was true to some extent in the world of 2D drawings, the value of BIM models for re-use makes this issue more significant. Thus, it is critical to smooth execution to assure that the contracts set forth ownership rights for models, derivative models. Further, clear rights regarding proper use of models by various parties, from creating derivative models to marketing, distribution, educational use, or re-use to meet other project goals or on other projects must be established in the contract.

## **F. BIM Risk’s Growing Edge**

For design professionals, and to some degree for contractors, the historic measure of a professional’s duties is the “standard of care” by which a professional’s performance has been measured. This standard holds a professional accountable for the industry established measure of performance and accountability, based upon what is “reasonable” or “ordinary.” With the continuing expansion of BIM use and the ever-changing

technologies, what is “reasonable” or “ordinary” is no longer easily measured. The industry has a long way to go with respect to measuring reasonable expectations on the kind of objective basis that professionals and consumers of design work have a right to expect. Until such time as the industry has a firmly established standard, the best hedge against risk for all involved is to clearly outline expectations and articulate a standard of care with measurable criteria and objectives in the contract. Striking a balance which allows room for new technologies, innovation, and new delivery methods while still allowing for all parties to manage risks and expectations must be an integral part of the contracting process while this evolution takes place.