



# Universal view:

International contractual issues around the globe

Issue 04 Autumn 2012

## Legal issues surrounding Building Information Modelling (BIM)

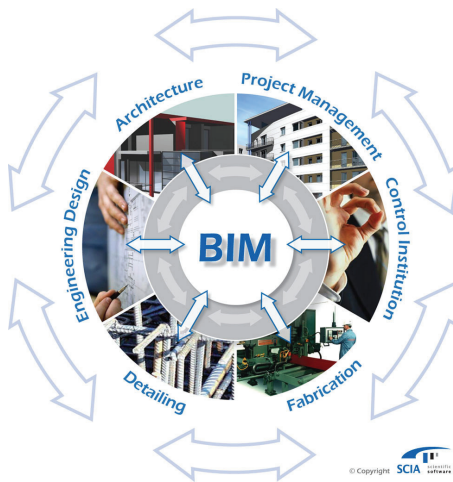
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Currently in the UK, there is a lot of discussion about Building Information Modelling (or BIM). BIM is a way of approaching the design and documentation of a project utilising 3D computer technology which is shared amongst the design and construction teams, incorporating cost, programme, design, physical performance and other information regarding the entire lifecycle of the building in the construction information/building model. In the UK this discussion has largely been generated by the publication of the government's construction strategy which requires that all government projects utilise BIM in the form of a fully collaborative 3D computer model (Level 2) by 2016, with all project and asset information, documentation and data being electronic. Of course internationally, the use of BIM can already be found on projects worldwide. For example, in Norway, the Statsbygg (the Norwegian government's key advisor in construction and property affairs) already use BIM in all public projects.

It is important to remember that BIM is not simply the use of 3D technology – it is a way of design and construction. And as the use of BIM spreads throughout the construction industry, thoughts inevitably

turn to the question of the type of legal and contractual implications that may arise. The Singapore BIM Guide<sup>1</sup> notes that:

*"A basic premise of Building Information Modelling (BIM) is collaboration by different project members at different stages of the life cycle of a facility to insert, extract, update or modify information in the BIM process to support and reflect the roles of each project member."*



### Will BIM alter responsibilities for design?

This can lead to concerns about whether or not the use of BIM might alter the traditional allocation of responsibilities as between the client, contractors, designers and suppliers. In the UK, where the government

is talking about the implementation of BIM Level 2, the answer to this question is that BIM should not alter those traditional responsibilities to any great degree. I say this because BIM Level 2 is:

*"a series of federated models prepared by different design teams (the number of models and purpose to be determined by the Employer), put together in the context of a common framework for the purpose of being used for a single project with licences granted to other project teams members to use the information contained in the federated models".<sup>2</sup>*

If you think of each model as a drawing or design in the more traditional sense, then provided your contract clearly defines your role and responsibility in the usual way, you can see why there should not be any significant change. Indeed you should remember that your usual responsibilities will remain. Remember the importance of understanding the design brief and the ongoing obligation to review the design. The new technology and new way of producing design do not change the fundamental legal principles.<sup>3</sup>

### What will happen to my contract?

There is also the question of how (if at all) the standard form appointments and

1. [www.aces.org.sg/pdf/058-2012\\_BCA\\_Singapore%20BIM%20Guide\\_Version%201.pdf](http://www.aces.org.sg/pdf/058-2012_BCA_Singapore%20BIM%20Guide_Version%201.pdf). Version 1.0, May 2012.

2. NBS Roundtable 12 July 2012

3. In time, as the technology bounds on and the collaborative nature of BIM increases, this may (most would say "will") change, but not at Level 2.



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building contracts should be altered to account for the use of BIM. The view of the NEC is that there is no need to do anything more than insert a BIM Protocol into the Works Information or Scope. This is the approach taken by the standard UK contract body, the JCT whose *Public Sector Supplement* suggests incorporating a BIM Protocol as a contract document'. So far, this seems quite simple. But what is not necessarily so straightforward is knowing quite what the BIM Protocol actually is.



### What is the BIM Protocol all about?

According to the AEC (UK) BIM protocol, the purpose of the protocol is to:

- To maximise production efficiency through adopting a coordinated and consistent approach to working in BIM;
- To define the standards, settings and best practices that ensure delivery of high quality data and uniform drawing output across an entire project; and
- To ensure that digital BIM files are structured correctly to enable efficient data sharing whilst working in a collaborative environment across multidisciplinary teams both internally and in external BIM environments.

To achieve this, the key features of a typical BIM Protocol should include consideration of the following:

- Definitions;
- The place of the BIM protocol in the priority of the contract documents;
- The obligations of the Employer;
- Who should appoint the BIM Information Manager and when?
- The obligations of project team members;
- Who is to produce the models needed and by when?
- To what extent will there be a collaborative working practice;
- How will the electronic data be exchanged?
- The use of models. Who can amend data once it is incorporated? You can look but not touch?
- Copyright. The need to grant licences related to permitted purposes;
- What are the limitations (if any) on liability associated with models?

### Who is the BIM Manager?

Here, it is critical that you understand the terms being used. BIM is (relatively) new. People use different words and terms to define the same role. Here more than ever, you should not assume what a word means. To take one example: the list of key features of the BIM protocol set out above, refers to the BIM Information Manager. Other people might refer to the BIM Model Manager or maybe the Design Co-ordination Manager or even the VDC (Virtual Design to Construction) Manager.

Whatever name the BIM Information Manager goes by, it is an important position. The basic role of the BIM Manager is to coordinate the use of BIM on a project. The BIM Information Manager is responsible for the administration and management of processes associated with Building Information Modelling on a particular project. More specifically, the draft PAS 1192-2:2012<sup>4</sup> requires the BIM Information Manager to:

*"provide a focal point for all information modelling issues in the project; ensure that the constituent parts of the Project Information Model are compliant with the MIDP [Master Information Delivery Plan]; [and] ensuring that the constituent parts of the Project Information Model have been approved and authorized as "suitable for purpose" before sharing and before issuing for approval".*

This will include having responsibilities for user access to the project BIM Model and for coordinating the submission of the individual designs and integrating them into the project model. The BIM Information Manager should also be in charge of data security and for maintaining records (who submitted what and when, and was it according to the agreed programme) and a data archive.

At Level 2 BIM, it is during the coordination process that the models are linked (or referenced) together into one federated model. A well-drafted protocol will ensure that the liabilities of each designer remain the same, before and after the

4. In the UK, a Publicly Available Specification (PAS) is a sponsored fast-track standard driven by the needs of the client organisations and developed according to guidelines set out by the British Standards Institute.



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incorporation of their design (or model) into the federated model.

This does lead to one further question. If each party is responsible for its own model, to what extent is the BIM Information Manager liable when clashes are not detected or the design is not coordinated? The typical approach, at least at common law, is that set out by the draft PAS 1192-2:2012 which suggests that the Lead Designer shall be responsible for the coordinated delivery of all design information.

In other words, nothing has changed. The role of the BIM Information Manager is therefore not meant to be equivalent of Lead Designer. The Information Manager is responsible for the management of information, information processes and compliance with agreed procedures, not the coordination of design. However, this does need to be spelt out, perhaps in the BIM Protocol; otherwise a potential conflict arises with regards to design and design coordination roles.

## The BIM Implementation Plan

Finally, the BIM Information Manager may also be responsible for establishing and implementing the BIM Execution (or Implementation) Plan. One way of looking at this, is as a BIM Programme or Schedule of Works. The Singapore BIM guide defines the "BIM Execution Plan" as a document which sets out:

*"how BIM will be implemented on a particular project as a result of the collective decision by the members of that project, with the approval of the Employer".*

In Singapore, the BIM Execution Plan is not seen as a contractual document, but the work product of a contract. The BIM Execution Plan should therefore provide a baseline to measure progress throughout the project. It should set out the roles and responsibilities of the project for design delivery (or data drop), model creation, maintenance and collaboration at the various stages of the project. As a consequence it might assist in identifying any additional services or resources that might be needed in the contract.

The BIM Execution Plan should also set out definitions of terms, and details of any file naming conventions, abbreviations and dimensions. Step-by-step checklists are also important; who needs to do what, by when? It may include templates to ensure that it is easier to understand and compare what everyone is doing. It may also set out the process of information approval. The Plan should therefore be considered as being in addition to, but aligned with, the construction programme and the design programme.

## Conclusions

At least at Level 2, BIM should not alter the traditional design roles and responsibilities. As always, it is important that these are

clearly defined and spelt out. It is also true that at Level 2, there should not be any great need to amend or rewrite the standard forms of contract and professional appointments. However, this is provided that those working with BIM all sign up to a BIM Protocol and agree to produce a BIM Implementation Plan promptly.

The BIM Protocol and the BIM Implementation Plan are the key documents which set out the lines of responsibility for the production and coordination of the design throughout the BIM process. Make sure that your project has these documents and ensure that you understand the terms and definitions used in those documents and the extent to which you are responsible for any particular element of design.

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