



Building Information Modelling (BIM) & English Law

by Stacy Sinclair

The government's construction strategy requires that all government projects utilise a fully collaborative 3D computer model (Level 2) by 2016, with all project and asset information, documentation and data being electronic. Accordingly, BIM is the construction industry's buzzword at the moment – if you want to secure that next project, be it for public or private works, BIM certainly should be at the forefront of your bid.

BIM, as defined by the Construction Project Information Committee and supported by the RIBA, is the *“digital representation of physical and functional characteristics of a facility creating a shared knowledge resource for information about it forming a reliable basis for decisions during its life cycle, from earliest conception to demolition”*.

In other words, 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. BIM is not simply the use of 3D technology – it is a way of design and construction.

As the use of BIM spreads throughout the construction industry, concerns regarding its legal and contractual implications rise. In particular:

- Does the use of BIM alter the traditional allocation of responsibilities as between the client, contractors, designers and suppliers?
- How (if at all) should standard form appointments and building contracts be altered to account for the use of BIM?
- Does the party managing the model assume additional liabilities and risk?

Before considering the answers to these questions, it is imperative that both the parties and their advisors understand what BIM environment they are working in. In 2008, Mark Bew of BuildingSmart and Mervyn Richards of CPIC developed the BIM Maturity Diagram – a now well-known diagram which acknowledges the impact of both data and process management on BIM and defines various levels of maturity for BIM. In short, Level 2 BIM provides data and information in a 3D environment, with each member of the design (& possibly construction) team creating and maintaining their own model. These models and databases then “fit” or work together with the use of proprietary technology (this consolidated model, comprised of the individual models prepared by each disciple, is often referred to as a “federated model in a Common Data Environment (CDE)”). On the other hand, Level 3 BIM utilises a single project model, accessible by all team members.

Any change in the traditional legal position?

The consensus now appears to be that the use of BIM at Level 2 does not require whole sale changes to the traditional forms of contract or the allocation of responsibilities as between the parties. However, as BIM moves towards Level 3 in the future, changes to building contracts may well be required as the traditional legal position and relationships

between the parties are likely to change. In March 2011, the Government Construction Client Group (GCCG) concluded in its Strategy Paper that “...*little change is required in the fundamental building blocks of copyright law, contracts or insurance to facilitate working at Level 2 of BIM maturity. Some essential investment is required in simple, standard protocols and services schedules to define BIM-specific roles, ways of working and desired outputs. Looking forward to the achievement of Level 3 integrated working, there are limited actions related to contracts, appointments and insurance that could be taken in advance to facilitate early adoption of integrated working.*”

With the government’s current focus on Level 2 BIM, establishing a BIM Protocol and its associated services schedules on each project is clearly of utmost importance in structuring the project’s design and development processes as well as addressing any legal concerns.

The BIM Protocol

At present, there is not a UK standard BIM Protocol as such – though they are likely to be available in the near future. Appendix 20 of the GCCG’s Strategy Paper did provide an illustrative draft of a BIM Protocol for discussion; however, this protocol is likely to be considered too brief. By way of example, it does not fully address intellectual property issues.

The US on the other hand has developed several standard BIM Protocols and execution plans: the AIA E202, ConsensusDOCS 301 BIM Addendum and the Penn State BIM Execution Guide. These documents are not intended to restructure contractual relationships or stand as a substitute for a complete building contract. They are simply addendums to be appended to the building contract and consultant appointments. These documents address important design, data and process issues which must be determined at the outset of a project: intellectual property rights, level of development (level of definition) of the model, model management, allocation of risk, ownership, permissible uses of the model, schedule of BIM deliverables, etc.

Whether or not the BIM Protocol is a contractual document and to what extent can the contractor and design professionals rely on each others models are important issues to confront and address in the BIM Protocol.

To have any legal recourse, parties are likely to require that the BIM Protocol is indeed a contractual document. Most recently, the JCT contract amendments, introduced in December 2011 in the Public Sector Supplement (Fair Payment, Transparency and Building Information Modelling), require any BIM Protocol to be a Contract Document. The Public Sector Supplement amends the definition of Contract Documents at clause 1.1 of many of the JCT standard forms to include “*any agreed Building Information Modelling protocol*”.

As regards to the level of reliance on the parties’ models (Level 2 BIM), the ConsensusDOCS 301 BIM Addendum allows parties to choose whether:

- each party represents that the dimensions in their model are accurate and take precedence over the dimensions called out in the drawings; or
- each party represents that the dimensions in their model are accurate to the extent that the BIM Execution Plan specifies dimensions to be accurate, and all other dimensions must be retrieved from the drawings; or

- the parties make no representations with respect to the dimensional accuracy of their models and they are to be used for reference only - all dimensions must therefore be retrieved from the drawings.

In order to avoid complicated and potentially expensive disputes in the future, any BIM Protocol should address this dimensional accuracy/level of reliance issue along with the scope of the models created (often referred to as Level of Definition).

The Information Manager

Finally, a further legal issue which must be considered at the outset is the role, responsibilities and liabilities of the Information Manager – a key member of the design and construction team required for the successful implementation of BIM. If each party is responsible for their own model, to what extent is the Information Manager liable when clashes are not detected or the design is not coordinated?

The draft PAS 1192-2:2012 requires the 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 is 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”*. The specification goes on to state that the Lead Designer shall be responsible for the coordinated delivery of all design information. As such, the role of the Information Manager is not meant to be that of the Lead Designer – the Information Manager is responsible for the management of information, information processes and compliance with agreed procedures, not the coordination of design.

If the parties agree that this is the role of the Information Manager, clearly this needs to be identified and dealt with in the BIM Protocol - otherwise a potential conflict arises as regards to design and design coordination roles.

Conclusion

The key to the successful implementation of BIM is not in the legal nuances – its success depends on close collaboration at the outset with the client, contractors, consultants and suppliers and the establishment of a well developed BIM Protocol. Level 2 BIM is unlikely to change the current legal landscape of the construction industry, provided the BIM Protocol addresses risk allocation and other elements touched on above. As we see a move towards Level 3 BIM, contractual relationships and risk are likely to change – therefore resulting in more sophisticated contractual arrangements.

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BIM (Building Information Modeling) helps AEC professionals across industries improve the way they design, construct, and operate buildings and infrastructure projects. Building Information Modeling (BIM) is the foundation of digital transformation in the architecture, engineering, and construction (AEC) industry. As the leader in BIM, Autodesk is the industry's partner to realize better ways of working and better outcomes for business and the built world. Try software. What is BIM? Building Information Modeling (BIM) is the holistic process of creating and managing information for a built asset. Conclusions Building Information Modeling (BIM) is emerging as an innovative way to manage projects. Building performance and predictability of outcomes are greatly improved by adopting BIM. As the use of BIM accelerates, collaboration within project teams should increase, which will lead to improved profitability, reduced costs, better time management and improved customer/client relationships. Building Information Modeling (BIM) software provides a model-based process that can be used to design and manage infrastructures and buildings. The tool goes beyond simple construction sketches to produce digital images of a facility's properties. With BIM software, you can generate and manage the functional and physical info of a project. What is BIM? Building Information Modelling (BIM) uses software to create a model of a building that reacts to change in the way that the real building would. It is designed to make an integrated and collaborative approach to construction possible. This guide was last updated in April 2012. Some users use BIM systems as advanced Computer Aided Design (CAD), others as a series of models for distinct elements of a project. For those at the cutting edge, a single integrated model is the goal. Its users hope that BIM can achieve cost savings and ultimately include integrated cost modelling, construction sequencing and facilities management capabilities.