

Building Information Modelling (BIM)

Construction Law Terms: A to Z

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B is for Building Information Modelling (BIM)

What is BIM?

BIM describes a method by which all relevant information for the life cycle of a building is coordinated, administered and exchanged among the project participants.

Core to this is the creation of a 3D federated model which includes not only geometrical design information, but also construction information and other parameters such as material characteristics, lifespan, fire resistance, carbon and acoustic values.

Variable parameters can also be included in the model to speed up the preparation of different design options (parametric design). The BIM model can also be linked to the programme (4D) and cost estimate (5D), and information can be issued for loading into facilities and/or asset management software.

The benefits of using BIM

There are a number of potential benefits of using BIM, including:

- It enables and facilitates better collaboration and communication across all disciplines working on the project.
- Through model-based cost estimating, the time-consuming task of quantifying and applying costs can be automated.
- Designs and documentation can be easily adapted to new information (for example, site conditions) and the programme can be planned more accurately.
- BIM allows better monitoring of ongoing modifications to a design which in turn:
 - enables the designer to identify clashes; and
 - facilitates co-ordination of trades and subcontractors on site.
- The information in a model can also benefit the operation of the building once construction is completed, so that BIM can be used to maintain an accurate, ongoing record of building information.

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Dealing with BIM contractually

Those intending to use BIM on a project will need to address BIM in the contract. The preferred method of dealing with BIM contractually is by incorporating a “BIM Protocol” into the contract, which sets out the provisions relating to BIM.

BIM Protocols

A BIM protocol will set out key provisions relating to BIM, such as:

- the employer’s obligations;
- the project team members’ obligations;
- the use of information;
- liability for project information and any proprietary work contained therein;
- project procedures; and
- security requirements.

One of the potential problems with BIM can be the lack of standardisation particularly when it comes to terminology, with different providers using different words for the same activity or item. This was reflected in the variety of different BIM protocols that were used. To deal with this in the UK, in 2013, the Construction Industry Council (“CIC”) published the first edition of its BIM Protocol, which was said to be drafted for use on “*all common construction contracts*”. An update followed in 2018. Both editions of the CIC Protocol were intended to be incorporated into contracts.

In December 2018, ISO 19650-2:2018 was published. It specified the requirements for information management, in the form of a management process, in the context of the delivery phase of assets and the exchanges of information within it, using BIM. In May 2020, a new protocol (co-branded by the UK BIM Framework and CIC) was published as an example of what could be included in an Information Protocol conforming with BS EN ISO 19650-2:2018 (the “New Information Protocol”). As was the case for its predecessors, the New Information Protocol is intended to be incorporated into the contract for a project, and it has been drafted so that the same protocol can be incorporated into each contract on any given project.

A copy of the New Information Protocol can be found at <https://ukbimframework.org/wp-content/uploads/2020/06/Information-Protocol-to-support-BS-EN-ISO19650-2.pdf>.

In November 2021, the UK BIM Framework and CIC published an information protocol template to support BS EN ISO19650-3 in respect of the operational phase of assets. A copy of that protocol can be found at [Information-Protocol-Template-to-support-BS-EN-ISO-19650-3.pdf](https://ukbimframework.org/wp-content/uploads/2021/11/Information-Protocol-Template-to-support-BS-EN-ISO-19650-3.pdf) (ukbimframework.org). They also updated their guidance in respect of BIM Information Protocols to include guidance on the ISO 19650-3 Information Protocol (in respect of the operational phase of assets). This updated guidance is available at [Guidance-about-the-Information-Protocols-supporting-the-delivery-and-operational-phase-of-assets.pdf](https://ukbimframework.org/wp-content/uploads/2021/11/Guidance-about-the-Information-Protocols-supporting-the-delivery-and-operational-phase-of-assets.pdf) (ukbimframework.org).

Standard Forms

The latest editions of standard form construction and engineering contracts may not all take account of BIM, but they are alive to the issue.

NEC4

NEC4 includes a new Secondary Option Clause dealing with BIM. Option Clause X10 (entitled “Information Modelling”) deals with issues such as ownership of information and liability for errors in that information.

Option Clause X10 has been drafted so that it can be used on a “*protocol independent basis*”, meaning that there is no requirement to use a particular protocol (such as the New Information Protocol referred to above) such that parties are free to decide the format of their BIM protocol. However, the NEC has provided guidance on how the New Information Protocol can be used with NEC4 Contracts. That Guidance includes pro forma wording to be included in the Scope. A copy of that guidance can be found at <https://www.neccontract.com/getmedia/9693ee8c-454b-4132-86c3-a2d73f50302a/Practice-Note-No-6-ISO-BIM-Protocol-2.pdf>.

JCT

The most recent JCT suite of contracts (2016) does not include contractual provisions dealing with BIM. However, in 2019, JCT issued a Practice Note entitled “*BIM and JCT Contracts*”. The Practice Note does not prescribe the form of the BIM Protocol, leaving it for the parties to decide but, it does include:

- a commentary on BIM and the 2016 Design & Build form of contract (which JCT understands to be the most popular form in the JCT suite for use on a project with BIM). JCT suggests that its comments may also be relevant to similar clauses in other forms of (JCT) contract. This commentary identifies provisions that may be most impacted by or relevant to a project using BIM; and
- suggestions on the main topics to include in a BIM protocol.

FIDIC

Like JCT, the second edition of the FIDIC Rainbow Suite of contracts does not include specific provisions dealing with BIM. The same is true of FIDIC’s Emerald Book (for tunnelling works) issued in 2019. FIDIC has, however, included “*Advisory Notes*” for projects using BIM. In these Notes, FIDIC identifies the key risks for a project involving BIM (for example, “*ineffective information, document or data management*”).

Conclusions

BIM is part of the modernisation of the construction industry, but it is important that contracts reflect the reality of using BIM on a project and include adequate provisions. For those using standard form contracts, there is guidance available. However, in circumstances where the standard form is amended for a particular project, then care must be taken to assess what impact (if any) those amendments may have on the contractual BIM framework.

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