

Legal/Technical Considerations Associated with BIM

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Building Information Modelling (BIM) is both a new technology and a new way of working. BIM is a term that has been around for a while in Manufacturing and Engineering industries, and is now prevalent in the construction sector.

BIM can provide many efficiencies to the construction industry such as waste reduction, efficiencies in time and cost and improved productivity. Design risk can be significantly reduced earlier on in the design process where these risks are usually best coordinated in house around the table rather than on site.

This however does bring its own challenges for the Client, Consultant and Contractor as closer collaboration if it is to work, requires transparency within the team and its work flows.

3D geometrical design is much more mature than the data and cost elements associated with BIM which often results in duplicate work flows. A Quantity Surveyor for example may use the BIM model to take off and quantify elements with some comfort that the model is spatially correct, but without validated data within the model separate take offs from 2D drawings are often undertaken as well to validate the information obtained from the model.

This may be down to lack of confidence or ability to interrogate the model but often this is down to Professional Indemnity and the need for traceability in the data used to provide costs against. Another issue is file format in particular .ifc where the conversion process from native software to .ifc has meant that not all of the information

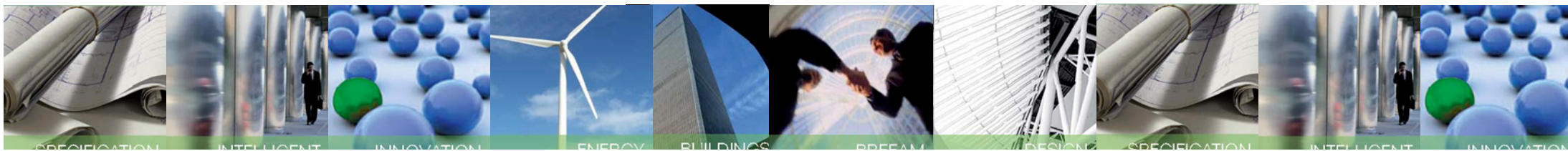
is transferred – who is responsible for these discrepancies? How can quantities be validated? All too often these questions result in validation of the data obtained from the model using 2D information as well.

Due to the scale and complexity of some BIMs they have the potential to provide increased risk of multiple error which can prove to be very costly if they are not identified, BIMs are then issued caveated for their intended permitted use and not realised to their full potential, unless a thorough validation exercise is undertaken to ensure the content and accuracy is correct, and unless professional indemnity can cover this risk there will be limitations on the use of BIM models for some aspects of the process.

Sometimes several parties are involved in the management and entry of data within BIMs but concerns around ownership and accountability of data within models results in BIMs being issued caveated due to the data management involving different parties and also sometimes not so seamless ifc conversions where design teams are working on different software platforms.

These issues not only affect cost, but also the use of models for different design and construction purposes and also raises some very important questions.

1. Who owns the model?
2. Who is responsible for inaccurate information?
3. Whose Professional Indemnity Insurance should protect the model?



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The answer maybe that there are several owners of the model, or models forming the federated model and several Professional Indemnity policies may be applicable to one federated model via the sub models but this therefore makes accountability and management of the model all the more challenging, particularly looking forward to BIM Level 3.

BIM also provides much more clarity to Contractors taking designs from Consultants on Design & Build projects where concerns around spatial fit and coordination are more evident in a 3D model than perhaps they were in traditional 2D design delivery. Therefore validation of the 3D model needs to be considered and built into design programs to ensure there is sufficient time to agree and ensure a smooth handover of the BIM from Consultant to Contractor at the respective design stage.

Where design responsibility is transferred to the Contractor the BIM would then usually be re-constructed to satisfy the Contractors own Quality Assurance procedures to ensure the requirements of Professional Indemnity policies are upheld should there be a claim.

BIM, if the process is applied correctly is a very efficient way of working however the insurance policies in place protecting Clients, Consultants, Contractors and other Stakeholders may need to be reviewed and adapted to suit this new workflow particularly if hosting of information is required, this more from the insured rather than the insurers as BIM projects will by nature provide more grey areas for insurance claims to be dismissed...

Professional Indemnity Insurers should generally have no issues with level 2 BIM which are sufficiently serious as to require coverage restrictions for Consultants which use it, as long as they have

disclosed all material facts to reduce the risk that a claim may be turned down [1]

Hosting of the BIM Environment and 3rd Party models etc. may not be covered under a typical PI policy and if this is required, separate consultation with the insurer should be sought to ensure full disclosure [1].

Therefore for traditional procurement routes using BIM, design liability should not change and generally policies will remain similar to that of a more traditional 2D design delivery. The exception to this would be Design and Build procurement routes where sometimes there is the expectation that the Contractor develop the Consultants MEP model rather than construct their own.

Traceability and permitted use of the BIM models need to be clearly defined in appointments in addition to being documented in the respective BIM Execution Plan. Alternatively where clear demarcation lines of risk and indemnity cannot be determined then the appointment and/or BEP should defer precedence to the 2D deliverables that are produced from a BIM project as they would have during traditional 2D procurement.

The resolution of the issues surrounding continuity of MEP models in Design and Build procurement will be instrumental in the industry moving from BIM Level 2 to Level 3 using traditional procurement routes.



CONCLUSION

Management of models and information within models using federation results in different parties being involved in the delivery of some elements of BIM projects. This provides ambiguity for insurers where professional indemnity is required as 2 policies may be applicable to one element of a project.

Insurance policies will require disclosure of all material facts and thus need to be informed of projects being delivered using the BIM process.

Until risk can be fully realised and Clients, Consultants and Contractors protected against Building Information Models will continue to be issued with caveats associated with their permitted use.

REFERENCES

[1] Best practice guide for professional indemnity insurance when using building information models – CIC/BIM First Edition 2013

[2]www.thenbs.com/topics/bim/articles/bimMappingOutTheLegaluses

[3]caseyrutland.com/2013/11/05/bim-legals-a-guest-post-by-bethan-onions-solicitor-at-arup/

[4] PAS1192:2013 Specification for information management for the capital/delivery phase of construction projects using building information modelling

