

# BIM, **Legal &** Procurement

L3 *Stakeholders'  
responsibilities*

# L3

**BIM IN PRACTICE**



Australian  
Institute of  
Architects

# BIM, Legal & Procurement

## L3 Stakeholders' responsibilities

### Contributors:

Peter Scuderi (Chair), Arup

Richard Barton, Australian Institute of Architects

Sam Bassilious, Rider Levett Bucknall

Warren Birchall, HASSELL

Chris Canham, Lend Lease

Andrew Chew, Corrs Chambers Westgarth

Fergus Hohnen, Woods Bagot

Kiri Parr, Arup

Wendy Poulton, Planned Professional Risk Services

Philippa Sutton, Laing O'Rourke

Claudelle Taylor, Leightons / Nexus Point Solutions

L BIM, Legal & Procurement

L1 BIM and Intellectual Property

L2 Professional Indemnity Insurance

**L3 Stakeholders' Responsibilities**

L4 Viable Options – Encouraging Collaboration and 'No Blame'

### L3 Stakeholders' responsibilities [Version 1 – August 2012]

#### Disclaimer:

This document is jointly published by the Australian Institute of Architects and Consult Australia and contains information prepared by the joint Australian Institute of Architects and Consult Australia BIM/IPD Steering Group and its Workgroups. The Australian Institute of Architects and Consult Australia make no representations, either jointly or severally, about the content and suitability of the material, for any purpose. It is provided 'as is' without express or implied warranty, including any warranties of merchantability or fitness. In no event will the Australian Institute of Architects or Consult Australia be liable, whether in contract, negligence or other action arising out of or in connection with the material, or for any special, indirect or consequential damages or any damages whatsoever resulting from loss of use, data or profits.

All material in this document is copyright to:

- either, or jointly, the Australian Institute of Architects and Consult Australia; or
- a third party, from whom the material is licensed for inclusion on this site.

No reproduction of the material is authorised unless written permission is first obtained from both the Australian Institute of Architects and Consult Australia.



Australian  
Institute of  
Architects

## INTRODUCTION

What needs addressing in teaming Professional Services Agreements and BIM Management Plans to ensure the stakeholders maintain responsibility for the accuracy of their input such as design/construction detail, level of detail, geometry, intelligence etc. in their individual discipline model or part of a model?

## WHO ARE THE BIM AUTHORS?

BIM authors are potentially multiple stakeholders (designers, consultants, contractors, trades, client); anyone who produces information relevant to the design, construction, operation and/or maintenance of a building. Authors change over time and may vary as the model progresses from design model to construction model and lastly to as-built model.

## WHAT ARE THE INDIVIDUAL AUTHORS' INPUTS?

The following includes inputs the author is regularly responsible for:

- Description of the built form and components of a building in progressively higher levels of detail during the design and construction of a project.
- Level of detail (LOD)
- Geometry/data
- Object intelligence, the 'I' in BIM – how much?, what purpose?

## WHAT ARE THE AUTHORS DELIVERING?

Anticipated or desired input by particular authors should be included in the Professional Services Agreement and the BIM Management Plan. The following include deliverables by the various authors of BIM:

- Outputs from a model (eg, 2D drawings, 3D views, schedules, images, fly-throughs, other model formats like IFC, 3D DWG)
- Extraction of basic building areas and volumes for space planning and massing studies
- Dynamically linked 2D/3D information (considering if/when dynamic links will be broken)
- Federated models, aggregated models
- BIMs as the basis for building performance simulation and analysis (eg, energy)
- Models suitable for 4D (scheduling) animation
- Models suitable for 5D cost scheduling
- The generation of 'as-construct models' for fabrication and assembly
- Output data that is relevant for operation and maintenance by facility managers

## WHEN DO AUTHORS HAVE RESPONSIBILITY & LIABILITY FOR THEIR CONTENTS?

The responsibility and liability of each author's content is defined by a model progression specification (also known as a BIM specification). The responsibility shifts over time; eg, architect produces design intent column; engineer adds additional detail including reinforcement, material attributes; contractor defines formwork to produce the required column.

Responsibilities will be determined by terms of use of the model during the design/construction process, and the whole of life. The development of a project specific BIM Management Plan will ensure all designers are aligned and agree to the plan. The nominated BIM Coordinator will update as things change/progress on the design.

## AUTHOR IDENTIFICATION IN AGREEMENTS & BIM MANAGEMENT PLAN

BIM authors should ideally be defined in the Professional Services Agreements and the Project BIM Plan (also known as the BIM Management Plan or the Project Execution Plan). The BIM purpose/usage should be defined and agreed in the BIM Management Plan. Roles and responsibilities, liabilities, intellectual property and moral rights should be clearly expressed. If a model developed for facilities management purposes is required then the outcomes/deliverables should and must be articulated at the design stage. The lead consultant's responsibilities and liabilities should be defined, as should the BIM Coordinator's (also known as the BIM Model Manager) role, responsibilities and liabilities.

## RESPONSIBILITIES WHEN SHARING PROJECT INFORMATION THROUGH BIM

There is little difference between BIM projects and projects designed and documented in 2D CAD as far as responsibility for content. If a BIM Management Plan is used to give clarity to who is responsible for content, then it also follows that clarity of ownership of each element of the model is also achieved<sup>1</sup>.

A couple of examples:

- If an authorised use is to produce photo-realistic renders and fly-throughs of the model, then the BIM Management Plan may impose a requirement to include material definitions to a required level. This may impact the scope of the architect's work.
- If it is a requirement to include AIQS or Unifomat codes against all objects, then this may impact scope.

<sup>1</sup> Refer to the *BIM Protocol Exhibit Document E202 – 2008*. It is the basis of a contract document by the US AIA. Issues such as level of development (LoD) define a contractual obligation, and further define the deliverables associated with that LoD. In addition a BIM Management Plan will need to define deliverables in order to define authorised uses of the model.

- Federated model requirements can significantly impact the scope of the consultants' work in that it may define how the model is created, or additional work required to suit the federated model. Federated model requirements to colourise by service, discipline or system for example, can have a significant impact on the services designers are modelling. A requirement to accommodate 4D will impact the model construction as it will need to be broken down into components that reflect construction scheduling.

In order to be able to agree to a collaborative BIM Management Plan, all stakeholders should have in place strong BIM guidelines within their organisation to define their standards for the production of a BIM project, or simply to define their current modelling standards applied to deliverable production.

These guidelines serve a number of functions:

1. They set out the internal standards the organisation works to, and the assumptions it makes regarding the use, or restrictions on use, of any models or information it provides as part of normal project delivery.
2. They provide an immediate and informed response to a client announcing that it requires a project to be delivered as a BIM project, and to a client presenting a project team with a BIM Management Plan for their project.
3. They can be used as a tool when negotiating a BIM Management Plan to assist in aligning in-house standards to the requirements of a project.

## THE LEGAL CONTEXT TO BIM MANAGEMENT PLANS

The BIM Management Plan should cover the procedure for directing, monitoring and controlling the use of BIM on the project. The BIM Management Plan may also include a BIM protocol which sets out technical details such as software requirements.

BIM authors should note the legal relationship between parties is contained in the Professional Services Agreement (PSA), while the BIM Management Plan is an administrative document and may not have binding contractual force even if in some instances it may be part of the contractual requirements. If the parties wish to give the BIM Management Plan binding contractual force, the PSA of each party involved in the model would need to make reference to the BIM Management Plan. The parties also need to discuss and clarify the legal impact of the BIM Management Plan – eg, whether it affects the risk allocation/liabilities set out in the contract. Consideration should also be given to other legal risks such as an action in tort or under the Competition and Consumer Act 2010 (Cth)<sup>2</sup>.

Ownership and responsibility of models are not issues to be considered in isolation but together with related matters of IP ownership and insurance. Legal liability and risk allocation should be set out in each party's PSA. To avoid uncertainty, the BIM Management Plan should be consistent with the parties' PSA and should not contradict it.

Considering the above, the BIM Management Plan needs to be produced either before the PSA or concurrent with it. Many aspects of a BIM Management Plan can redefine or expand on the definition of deliverables in a PSA. If it is produced after the event, revisiting the PSA to have it amended may not be practical.

A detailed list of topics to be considered in a BIM Management Plan can be found in Document P2 that forms part of this series.

## RISKS – FROM A CONSULTANT PERSPECTIVE

From a consultant's perspective, there are some concerns about the use of BIM data by other stakeholders.

### How is intellectual property loss mitigated (also refer to Document L1 - BIM and Intellectual Property)

Native BIM files contain significant embedded intellectual property in the form of:

- content (eg, objects, families).
- guidance on internal processes (eg, written guidance for staff using the template).
- uncontrolled data (dynamic schedules, editable drawings, sheets, working views etc).

For some firms, the loss of intellectual property resulting from the issue of native format files is a concern. Approaches to reducing this risk generally include removing as much information as possible from native files prior to issue. This follows a well-established principle of issuing only data that is required by the recipient.

A second approach is to use non-native (eg, IFC), or read-only (eg, DWF, Navisworks) file formats for data exchange with third parties. Both provide a layer of abstraction between the original source data, and the data exposed to third parties, thereby protecting some of the raw intellectual property.

### How to avoid inappropriate use of data

Data issued by the consultant team may be used in a variety of ways, and by a variety of parties. Given that a BIM contains more information than traditionally included in 2D paper or digital files, there is the potential for some of the data contained in the BIM to be used for purposes for which it is not suitable. Examples include:

- use of the model for energy analysis, where only certain elements have energy data associated with them.
- inconsistent levels of development of different areas of a model (eg, lower levels to LoD 200, but upper levels to LOD 100 only), leading to inaccurate calculations during analysis.

If we move towards a position where parties rely more heavily on the BIM as opposed to a set of contract drawings, should the recipient be able to rely more heavily on how fit for purpose the data is? This would appear to require more care on the part of the consultant when issuing data, or very specific guidelines for use.

<sup>2</sup> <http://www.comlaw.gov.au/Details/C2012C00490>

## How to avoid data being used against the consultant

BIM provides opportunities for the overall team to improve the design/construction outcome, but also creates some risks for the consultant team.

Examples:

- A contractor carries out a clash detection analysis of a BIM, but does not notify the consultant team of clashes identified. Instead, the contractor uses the clash report to identify potential variations.
- A party uses analysis to determine how fit for purpose or complete a BIM is in order to argue that the design is inadequate or negligent.
- Assuming that a BIM issued during the course of a project is a work in progress, another member of the consultant team argues for delay on the basis that parts of the model were incomplete or unresolved at the time of issue.

There would appear to be a need for sharing of the risks/rewards resulting from the use of a BIM.

## Increased duty of care can be achieved through use of BIM

BIM may increase the duty of care required of a consultant in the following ways:

- An expectation that BIM, clash detection etc represent a reasonable standard of care.
- By issuing more data (compared to paper or traditional 2D), there may be greater onus to check how fit for purpose that data is prior to issue.<sup>3</sup>

3 References: <http://www.forconstructionpros.com/article/10283787/bim-emerging-as-constructions-legal-standard-of-care>  
Is the recent US case relevant to the Australian region? <http://archrecord.construction.com/news/2011/05/110519-BIM-Lawsuit-1.asp>

## CONCLUSION

BIM authors are multiple stakeholders – designers, consultants, contractors, trades, clients and others who produce information relevant to the design, construction, operation and/or maintenance of a building. Authors change over time and may vary as the model progresses from design model to construction model and lastly to as-built model. At each step of the way, the inputs by each stakeholder have an impact on the team as a whole and the BIM deliverable. The responsibilities and liabilities of each stakeholder's input should be defined in the BIM specification to provide clarity as the responsibilities change over time.

There is little difference between BIM projects and projects designed and documented in 2D CAD as far as responsibility for content. If a BIM Management Plan is used to give clarity to who is responsible for content, then it also follows that clarity of ownership of each element of the model is also achieved. The BIM Management Plan should cover the procedure for directing, monitoring and controlling the use of BIM on the project. The BIM Management Plan may also include a BIM protocol which sets out technical details such as software requirements. Ownership and responsibility of models are not issues to be considered in isolation but together with related matters of IP ownership and insurance issues.

From a consultant's perspective, there are some concerns about the use of BIM data by other stakeholders:

- How is intellectual property loss mitigated?  
(also refer to **L1 - BIM and Intellectual Property**)
- How to avoid inappropriate use of data.
- How to avoid data being used against the consultant.
- Increased duty of care can be achieved through use of BIM.

## Summary

- Who are the BIM Authors?
- What are the individual authors' inputs?
- What are the authors delivering?
- When do the authors have responsibility and liability for their respective content?
- Responsibilities when sharing project information through BIM.
- Author identification in an agreement and BIM Management Plan.
- The legal context to BIM Management Plans.
- Risks from a consultant perspective.