

# BIM in Practice

*BIM in Practice –  
Introduction*

# BIM

**BIM IN PRACTICE**



Australian  
Institute of  
Architects

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## *BIM in Practice – Introduction*

### **Contributors:**

Dominik Holzer (Chair), AEC Connect

Carl Agar, Menco Electrical

Nicholas Burt, FMA

Richard Choy,  
NATSPEC//Construction Information

Ross Clark, Australian Institute of Architects

Ian Cumming, IRC

John Hainsworth, Arup

Kevin Howie, GHD

Julia Lemercier, Consult Australia

Toby Maple, HASSELL

Carmel McCormack,  
Australian Institute of Architects

Paul Megram, Rider Levett Bucknall

Sheena Nelson, Consult Australia

Paul Nunn, CSI Global Services

David Sutherland, Fender Katsalidis

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## BACKGROUND

Back in 2010 I was first exposed to Building Information Modelling (BIM) initiatives undertaken by the Australian Institute of Architects and Consult Australia by facilitating the Melbourne and Sydney forums of a discussion titled 'Building Information Modelling'. The forums were held in four major Australia cities in order to identify the challenges, successes and failures of using BIM within the Architecture, Engineering, Construction (AEC) industry.

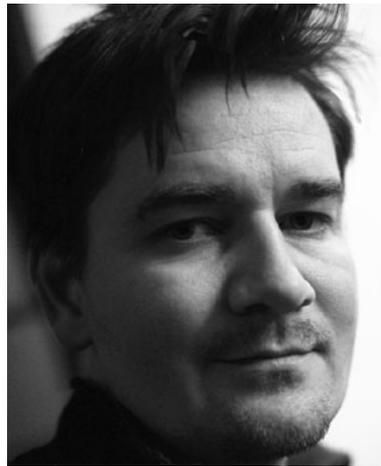
There is one aspect in particular that I remember about the forums: Nobody held back in voicing their views, sharing their expectations, and sometimes even sharing their frustrations about the use of BIM in their everyday practice. We had several hours worth of vivid conversations, fired by provocative introductory speeches and comments by leading architects, engineers and contractors. This was not your usual round of presentations; instead the floor was the main participant with an audience that covered nearly the entire range of stakeholders within the building industry: Clients, Architects, Engineers, (Sub) Contractors, QS, and specialist BIM Consultants. It was great to have everyone on board.

One other thing became clear during those events: the Australian AEC industry as a whole is in urgent need of guidance about the implications of BIM in everyday practice. There is a lot of uncertainty and there is a lot to learn about this new paradigm that is rapidly evolving and changing the way we operate throughout the industry. The 'BIM in Australia 2010' report that summarised the outcome of the BIM forums highlighted this sentiment and it was a call for action by industry bodies such as the Australian Institute of Architects and Consult Australia.

## BIM & IPD STEERING GROUP

The collection of documents that form part of this release is a direct response to this call for action. Following the above mentioned forums and the 'BIM in Australia 2010 Report' a joint national BIM & IPD Steering Group was founded by the AIA and Consult Australia in mid 2011. Consisting of Architects, Engineers, Contractors, and high level representatives of Industry bodies, the AIA/Consult Australia initiative is a truly broad and national effort.

Our first task was to find the most likely people to help us inform the AEC industry on how to adopt BIM and to agree on the BIM topics to consider. It was important to limit the scope of investigation to what can realistically be managed by a group of individuals who lend their in-kind contribution next to working in their respective jobs. It was decided to limit the focus to 3-4 topics to start with, and to expand this list once there was sufficient resolution regarding existing topics. Another reason to limit the scope of the BIM & IPD steering group was that there exist already manifold initiatives and organisations across Australia (and abroad) who investigate BIM. Others have set up specific BIM groups and they have generated a wide body of knowledge about BIM's implications in practice within Australia and beyond. Any scope for this group had to be found while avoiding double up with what others are already doing.



**Dominik Holzer**  
Chair,  
BIM and IPD Steering Group

## EXISTING CONTEXT

The promotion of BIM on a government level is being addressed by a variety of groups, such as the Built Environment Industry Innovation Council (BEIIC), the Australian Procurement and Construction Council (APCC), and the Australian Construction Industry Forum (ACIF). More recently buildingSMART has also become increasingly active in that area, expanding their initial focus on data interoperability to look at a broader, nation-wide 'BIM Initiative'. The National BIM Guidelines released by the CRC for Construction Innovation in 2009 have become a stepping stone for many to engage with BIM in their practice. As recent as in late 2011 and early 2012 the National Building Specification (NATSPEC) released a National BIM Guide and a BIM Management Plan Template. Other BIM standards can be found with the US Veterans Affairs (VA) Guide, or the 'BIM-MEP<sup>AUS</sup>' initiative of the Air Conditioning and Mechanical Contractors' Association of Australia (AMCA) - just to name a few.

As part of our group's effort in putting together the collection of documents that form part of this release, we have been liaising with all of the national initiatives mentioned above. We see our work as complementary to their output.

## MISSION AND CONTENT

When positioning the AIA/Consult Australia scope in the midst of these efforts, it becomes apparent that this initiative can only add to the existing BIM discourse in a useful manner by focusing on an area that is as yet missing:

*The provision of easily understandable, short and targeted advice about BIM related matters that affect the everyday practice of those implementing it in the AEC industry.*

It is therefore no coincidence that we release the current set of information as a collection of 23 brief documents. They support everyday practice as well as proposing new education strategies that inform current and future practitioners. It is important to note that despite the fact that the target constituency of the AIA and Consult Australia can be understood as consultants, the documents are aimed at supporting all stakeholders within the building industry. Clients, Manufacturers, Quantity Surveyors, Contractors, Facility Managers and Subcontractors all have a stake in BIM.

Our initiative's output resonates the sentiment on several occasions that there are greater benefits to be achieved when applying BIM collaboratively on projects of a certain scale. BIM in isolation within an organisation's boundaries (lonely BIM) may well be beneficial for that firm, but ultimately, it is the entire building life-cycle and work across disciplines (social BIM) that can and ought to be addressed if the industry wants to get greater value out of BIM.

Out of a list of approximately 10 topics, the steering group soon decided on four areas of investigation:

- BIM Management Plans - Streamlining multi-party collaborative BIM processes
- Legal & Procurement - Considering BIM challenges on the contractual side
- Education - Educational requirements and the adjustment of curricula in support of BIM
- Outreach - Helping stakeholders in the AEC Industry to understand what BIM means for them

In order to explore these four areas in greater detail, four respective Working Groups were formed in late 2011 and highly regarded industry specialists were appointed to chair them. The formation of the Working Groups resulted in the appointment of approximately 10 members per group, covering the entire spectrum of practitioners in the AEC industry, as well as lawyers, risk managers, and client representatives.

## CURRENT RELEASE AND FUTURE WORK

This first release of documents provides you with a comprehensive collection of industry papers related to the four areas of investigation mentioned above. Some of them will be more relevant to you than others. They don't form a 'complete' set of documents as BIM is constantly evolving and the Steering Group will decide on a direction to take based on industry feedback.

The complete list of documents that form part of this first release is as follows:

## INTRODUCTION

Introduction, Chair, BIM & IPD Steering Group (Dominik Holzer) with AIA (David Parken) and Consult Australia (Megan Motto)

BIM! What is it? / Glossary

## BIM MANAGEMENT PLANS

Preface, Chair BIM Management Plans Working Group (Chris Needham)

P1 - What is a BIM Management Plan, and why should we use one?

P2 - What should be addressed within a BIM Management Plan?

P3 - How should you prepare and apply a BIM Management Plan?

## BIM, LEGAL and PROCUREMENT

Preface, Chair BIM, Legal & Procurement Working Group (Peter Scuderi)

L1 - BIM and Intellectual Property

L2 - Professional Indemnity Insurance

L3 - Stakeholders' Responsibilities

L4 - Viable Options - Encouraging Collaboration and 'No Blame'

## BIM EDUCATION

Preface, Chair BIM Education Working Group (Bilal Succar)

E1 - BIM Education and BIM Learners

E2 - BIM Learning Providers

E3 - BIM Learning Spectrum

## BIM OUTREACH

Preface, Chair BIM Outreach Working Group (Toby Maple)

O1 - Educating Clients: What to ask for when requesting "BIM"

O2 - Architects and Building Designers: What does BIM mean to my business?

O3 - Engineers: What does BIM mean to my business?

O4 - Contractors/Builder's: Possible uses of BIM for Construction

O5 - Quantity Surveyors and Cost Planners: How can BIM improve my business?

O6 - Facilities Managers: What benefits are there for me engaging with a BIM process?

O7 - Manufacturers and Suppliers: What can BIM do for my products?

The documents will be adjusted and new areas of investigation will be added over time. This will require your input in order to determine which aspects of BIM in your practice you would like to learn about in the future. The website we set up to download our documents <http://bim.architecture.com.au> acts as an information hub for latest updates and requests for feedback.

Some trends and future areas of investigation are already emerging:

- The increased importance of Client requirements related to the extraction of data from BIM relevant for the Operation and Maintenance of Facilities.
- Increased potential of linking BIM to Geospatial (GIS) data and the inclusion of Urban Design.
- Increased connectivity between 'Design Intent' BIM and 'Construction BIM' by consultants and subcontractors

I am speaking on behalf of all members of the Steering and Working Groups when I encourage you to take advantage of the information provided by our initiative, hoping that it will enrich your practice. Please let us know your views through the feedback channels we provide. We want to ensure that this effort grows and its quality increases over time and we need your support to make this happen.

Warm Regards

Dr. Dominik Holzer

Chair: BIM & IPD Steering Group, Australian Institute of Architects and Consult Australia





Together with Consult Australia, the Australian Institute of Architects is very proud to be presenting the first comprehensive collection of practice focussed documents related to BIM in Australia.

BIM is providing the built environment industry with an innovative approach to building design, construction and management and it is only fitting that both the Institute and Consult Australia are at the forefront of this initiative.

BIM is changing and challenging the way industry professionals think about how technology can be applied to the industry. It is a pragmatic approach to design, construction and management in consideration of the entire building lifecycle. It is essentially the intersection of two ideas. Firstly, by ensuring critical design information is in digital form, it will make it more invaluable for companies to update and share information collaboratively. Secondly, by creating consistent relationships between digital design data and building modelling technology, BIM can allow for significant savings of time and money while increasing project quality and productivity.

The Institute encourages broad participation from all sectors of the built environment to get involved with the working groups, online discussions and forums. The response so far has been outstanding with the launch events in Perth, Sydney, Adelaide, Melbourne and Brisbane all sold out. The presentations provide invaluable networking opportunities for the entire range of BIM stakeholders within the building industry: architects, clients, contractors, engineers, fabricators, facilities managers, planners, project managers, designers and quantity surveyors. I look forward to seeing these efforts continue to grow and witnessing the positive impact that this will have within the industry.

I would also like to take this opportunity to thank all of the contributors to this important piece of work. In particular, Dr. Dominik Holzer as Chair of the BIM and IPD Steering Group and all of the Working Group Chairs, Bilal Succar, Toby Maple, Chris Needham and Peter Scuderi have put in an enormous amount of effort to bring this project to fruition.

David Parken  
Chief Executive Officer  
Australian Institute of Architects



Consult Australia is proud to have partnered with the Australian Institute of Architects to deliver the first comprehensive range of cross-disciplinary practice documents for Building Information Modelling (BIM) entitled BIM in Practice.

It has been widely reported that the construction industry in Australia and overseas wastes over 30% of its efforts. If that wasted effort were to be reduced by only one third, it would lift Australian construction output by more than \$10 billion annually.

The use of more sophisticated procurement and delivery models such as Integrated Project Delivery (IPD) and modern technological tools such as BIM will be enablers for industry efficiency gains, and greater certainty for project outcomes. The advantages of embracing these key levers of productivity are obvious - reduction of delays, elimination of variations, improved delivery scheduling and more effective construction management.

True IPD can only be achieved in a collaborative environment, where all team members are encouraged to contribute to problem solving, and those contributions are respected. BIM provides all partners with a tool to work towards true collaborative contracting.

The adoption of BIM in particular has not been without its challenges, but if we as an industry are to step up to the productivity challenge, then we must collectively see a way through these obstacles to be able to truly embrace this game changing capability.

The range of practice documents produced by the joint Consult Australia/ Australian Institute of Architects BIM and IPD Steering Group and Working Groups will provide industry practitioners with pertinent information about how to incorporate BIM into their practice and addresses areas for caution, such as insurance and contractual issues.

Consult Australia would like to thank all of those who have contributed in the delivery of the BIM in Practice documents.

Megan Motto  
Chief Executive Officer  
Consult Australia