BIM Outreach

06 *Facilities managers – What benefits are there for me engaging with a BIM process?*

06

BIM IN PRACTICE

CONSULT AUSTRALIA

Australian Institute of Architects

BIM Outreach

06 *Facilities managers – What benefits are there for me engaging with a BIM process?*

Contributors:

Toby Maple (Chair), Hassell

Glenn Cunnington, Humphrey + Edwards

John Hainsworth, Arup

Belinda Hodkinson, Sinclair Knight Merz

Daniel Jürgens, Cox Architecture

Peter Liebsch, Grimshaw

Darren Tims, Rice Daubney

Flavio Yamauti, Hansen Yuncken

06 Facilities managers – What benefits are there for me engaging with a BIM process? [Version 1 – August 2012]

CONSULT AUSTRALIA

Australian Institute of Architects

INTRODUCTION – FACILITY MANAGERS & BIM

Facility managers have a great opportunity to participate in the development of project and facility standards to suit their management procedures. By collaborating early with the design team in Building Information Modelling not only makes the handover of information a lot more efficient but it also allows a facility manager to engage and discuss their key issues and concerns with managing the costs and maintenance of a building. An operation cost of a facility over its lifecycle is approximately 80% of the total initial cost to build. The design analysis stage of the facility will tackle the building's efficiencies in running; however an experienced facility manager will be able to drive the information (or data) management and production to enable efficient information collection for the lifetime of that asset.

Record modelling

Record modelling can be achieved by combining the BIM and all of the information (or data) generated relating to the design, construction and operation of the facility. The BIM needs to contain links to information such as serial or barcodes, RFIDs, warranties and expected maintenance needs of the equipment and spaces within the building. To ensure the BIM is utilised effectively, facility managers must be involved in the beginning of the project to guarantee the success of creating the record model in accordance with the way the facility is intended to be used. See the document **P2 – What should be addressed within a BIM Management Plan?** for information on defining BIM requirements.

COBie (Construction Operations Building Information Exchange) is fast becoming a neutral way of capturing the relevant information required by a facility manager.

http://www.wbdg.org/resources/cobie.php

A BIM authoring tool will export raw data which is then filtered or processed into COBie format to be linked to a facilities management database or software solution. This image is the system commissioning stage information (part 1) that is the suggested handover of data for a facility manager.

Below is a list of key items the facility manager needs to understand when working with a project team utilising a BIM process.

- How is information currently managed, maintained and inputted into the facilities manager's current FM tool?
- What information is important to the facility manager to the running and maintenance of the facility?
- Who in the design/construction team is providing the federated or individual discipline specific BIM files and what level of information will these files contain?
- Is a compliant BIM authoring tool being used to accommodate the deliverable?
- What format is the deliverable going to be provided (COBie, database, IFC, Revit, ArchiCAD, dwf)
- Will the database of the BIM contain assets and equipment with information attached?
- What Level of Development (LoD) is expected for each stage of the design, construction and operation?
- Who will be updating the BIM during a renovation? The facility management team, current contractors or a new model delivered with each renovation?

Many of these questions have legal ramifications (see work undertaken by the AIA/Consult Australia Legal and Procurement Working Group) and will require the facilities manager to engage in the BIM project plan early to assist the design and construction teams with their requirements. See the document **P2 – What should be addressed within a BIM Management Plan?**.

INFORMATION NEEDED TO REALISE POTENTIAL VALUE

Building maintenance scheduling

Building maintenance scheduling enables proactive maintenance thus reducing costly repairs on the facility (if poorly maintained) and assures the facility is running at optimal performance as per the designed solution. This covers;

- Building structure: understanding the material's and fabric's life expectancy and expected environmental needs, eg, expected traffic on particular carpet
- Building systems: for the upkeep and running of machinery and interrelated building systems to assist with work orders, eg, air-conditioning filter servicing
- Contract management: to understand what machines are maintained by external parties versus internally and when they are expected to be serviced or cleaning contracts and tendering for these

Building systems analysis

Building system analysis is currently a hot topic and is about analysing how the facility is running compared to the designed expectations. This is not limited to mechanical systems, and lighting and solar analysis. The BIM is infused with information captured by sensors and other facility data to graphically understand the facility's effectiveness. Often a good systems analyst will use the BIM to perform 'what if' scenarios and test if better functional use of the facility is obtainable.

Asset management

Asset management of a facility is very much about the management and location of items. The BIM can be used to communicate with the finance, security and policy related functions of the facility.

- Asset management and tracking: management of the data. This can be linked to RFID, barcodes or QR codes
- Secure areas: for access, keying, security, etc
- Code compliance: for certification, yearly energy audits and retrofitting
- As-built information: for further expansion, re-use, decommissioning and environmental impact
- Change order: to understand the history behind the facility lifecycle

Space management & tracking

Space management and tracking relates to aspects from transition planning for retrofitting through to resource planning.

- Space functions: from department to occupancy and building services required
- Area and volume calculations: for space rentals, department or faculty requirements
- Area utilisation: to limit servicing unoccupied spaces

Disaster planning

- An up to date federated model can assist with emergency responses and disaster management. The key areas this relates to is egress and ingress. Access to models by special and uniformed services will provide reduced risk to those forces in cases of building failure, emergencies or times of conflict.

CONCLUSION

The integration of BIM into the construction industry is opening up the channels for all stakeholders to better understand how the facilities manager works. Understanding the facilities operational needs can only be determined by those than run it. Engaging at the early stages of the design process will enable embedding the fundamental requirements of the facilities manager to streamline information and data flow to the people that will use that information long term – the facilities manager.

Summary Box

Record modelling: What data is needed to form an informational link to where and at what stage?

Realising the potential value:

- Building maintenance scheduling
- Building systems analysis
- Asset management
- Space management and tracking
- Disaster planning