

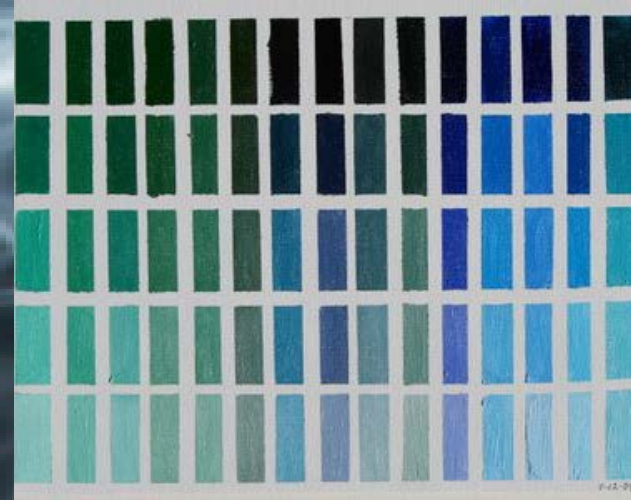
# **NATSPEC National BiM Guide**

**Richard Choy**  
**NATSPEC // Construction Information**

ICIS, Oslo  
4 June 2012

# Why develop a NATSPEC National BIM Guide?

**NATSPEC**  
BiM



# Use the National BIM Guide and the Project BIM Brief

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**BiM**

NATSPEC believes that digital information, including 3-D Modelling and Building Information Modelling, will provide improved methods of design, construction and communication for the industry. Further, NATSPEC supports open global systems. This will result in improved efficiency and quality.



**NATSPEC National BIM Guide**

The Guide defines:

- Uses for BIM on projects
- Roles and responsibilities
- Collaboration procedures
- Modelling requirements
- Documentation standards
- Digital deliverables

Download for free @ [www.natspec.com.au](http://www.natspec.com.au)

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## NATSPEC BIM Reference Schedule



### 1.1 Purpose of this Project BIM Brief

### 1.1 Purpose of this Project BIM Brief

This Project BIM Brief is to define the Client's requirements for the use of Building Information Modelling (BIM) on the Project identified below.

Application of this Project BIM Brief

ICT BIM Brief must be read in conjunction with the NATSPEC National BIM Guide. Any variation to NATSPEC National BIM Guide needs to be recorded within this Brief. This Brief is to be read in conjunction with the Project Contract and other briefing documents.

object details:

v1.0 – September 2011

M Project Team

Responsibilities shall be assigned to BIM Project Team members, as required, in accordance with – **BIM Roles and Responsibilities** of the **NATSPEC National BIM Guide**. Append details of the of Team members to this Brief.

### Uses for BIM on the Project

It requires that the following uses of BIM shall apply to this Project. They correspond to those found TSPEC National BIM Guide, and can be identified by the clause reference number. Where only clause items associated with a particular clause are required, expand the entry to show this.

Brief for (Project Reference)

(Dist)

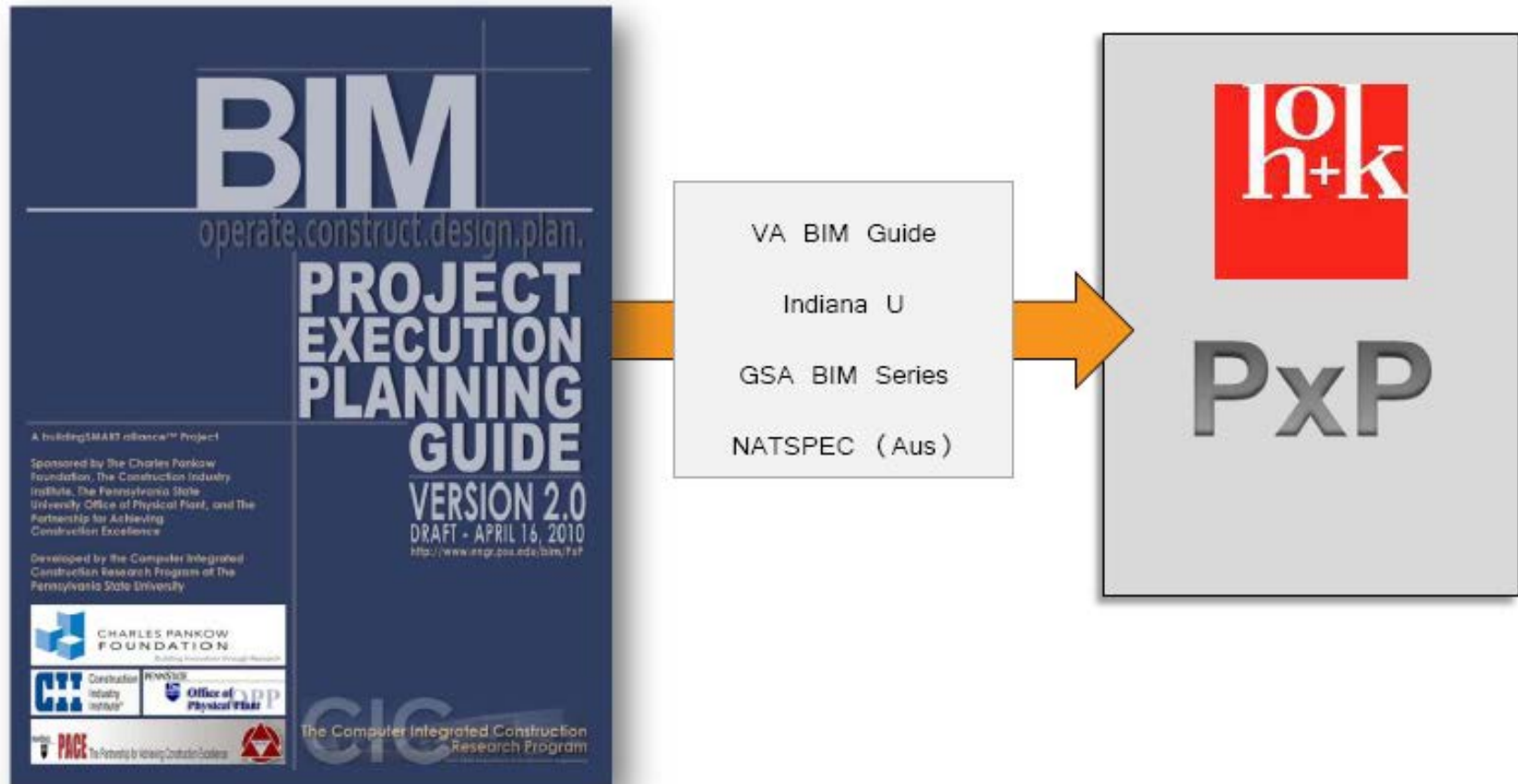
**SPEC//**  
**struction**  
**mation**  
itspec.com.au

Sustainable Material LEED or Other Requirements	LEED Initiatives Bronze, Silver, Gold
Phases Time Sequencing & Schedule Requirements	Phasing (ImroClass Table-32)
Phases Time Sequencing & Schedule Requirements	Overall Duration

[illegible]

# Already recognised

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**Associated General Contractors of America (BIMForum)  
– NATSPEC National BIM Guide was referenced as being  
currently the best that one of the contractors reviewed.**



# BIM Uses

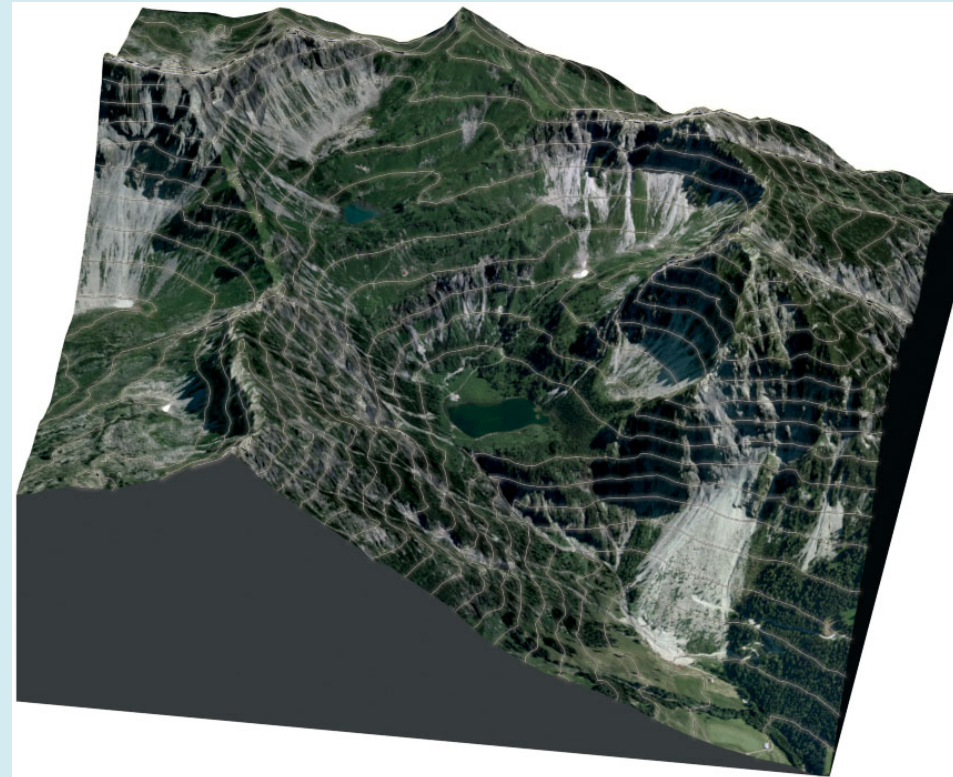
- 7.1 Project Definition, Planning and Pre-Design
- 7.2 Architectural Modelling (Design)
- 7.3 Structural Modelling and Analysis
- 7.4 MEP Modelling and Analysis
- 7.5 Quantity Take-off and Cost Planning
- 7.6 Construction Models
- 7.7 Facilities Management/As-built Models



# 7.1 Project Definition, Planning & Pre-Design

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- 7.1.1 Modelling  
existing  
conditions
- 7.1.2 Site Analysis
- 7.1.3 Space and  
equipment  
validation



# 7.2 Architectural Modelling (Design)

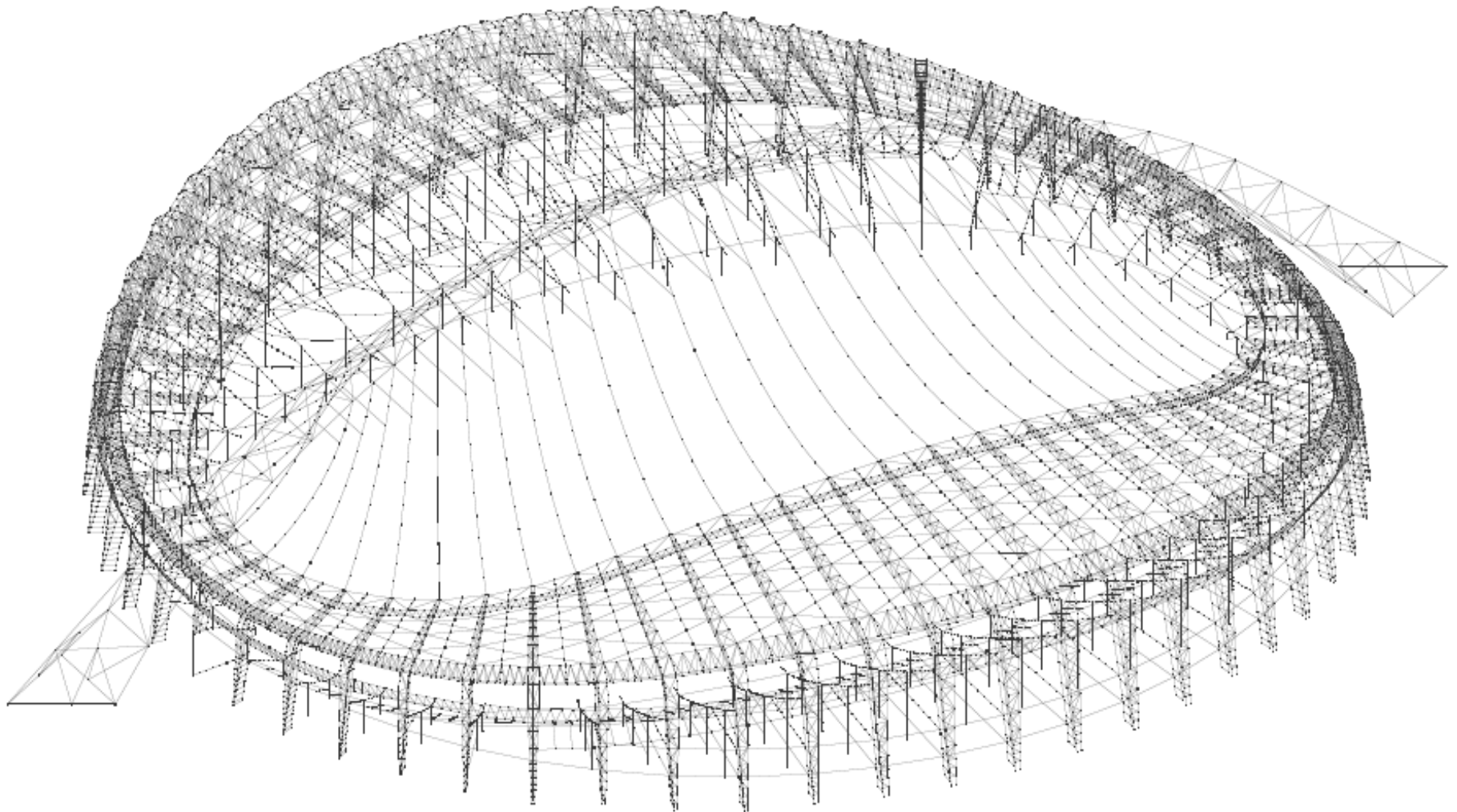
- 7.2.1 Architecture – spatial and material design models
- 7.2.2 Design visualisation for communication and functional analysis
- 7.2.3 Code checking
- 7.2.4 Sustainability evaluation





# 7.3 Structural Modelling & Analysis

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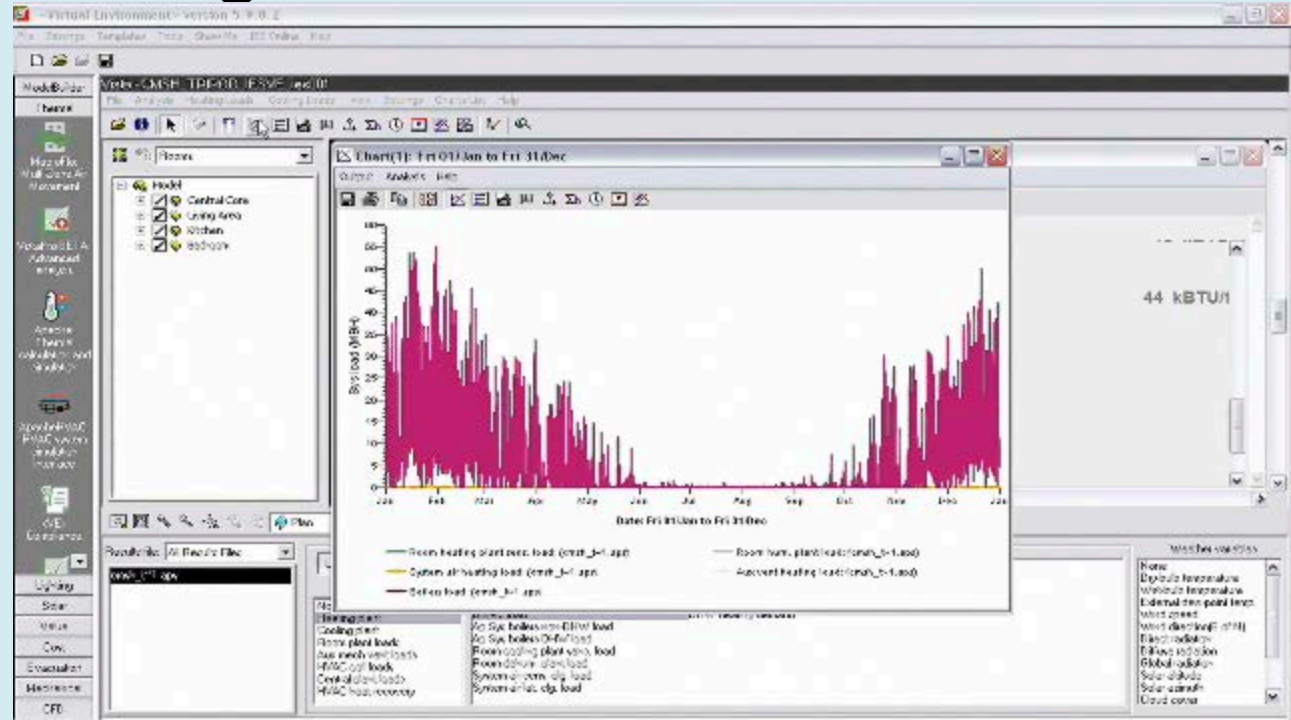
# 7.4 MEP Modelling and Analysis

## 7.4.1 Energy Analysis

## 7.4.2 Virtual Testing and Balancing

## 7.4.3 Lighting Analysis

## 7.4.4 Fire Engineering



# 7.5 Quantity Take-off and Cost Planning

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The image shows a sequence of steps for adding an Excel data sheet and selecting attributes in NATSPEC BiM. Red circles and lines are used to highlight specific elements:

- 1**: Points to the top toolbar of the 'Add Excel Data Sheet' dialog.
- 2**: Points to the 'Name' column in the 'Query...' table.
- 3**: Points to the 'Report Data' section, specifically the 'Identifiers' and 'Calculations' tabs.
- 4**: Points to the 'Report...' button in the 'Add Excel Data Sheet' dialog.
- 4.1**: Points to the 'Member' row in the 'Properties' dialog.
- 4.2**: Points to the 'Section' property in the 'Properties' dialog.
- 5**: Points to the 'Attributes' section in the 'Add Excel Data Sheet' dialog.
- 5.1**: Points to the 'Attributes' list in the 'Attributes Selection' dialog.
- 5.2**: Points to the 'Dictionary' column in the 'Attributes Selection' dialog.
- 5.3**: Points to the 'Package' column in the 'Attributes Selection' dialog.

**Add Excel Data Sheet Dialog:**

Name: Excel Data Sheet.367  
Data sheet name: Excel Data Sheet.367.xls

**Query...**

Name	Path
BEAM_1	\BKL_BNV_603_SEC_STL_SOU \ BEAM...
Beam.2	\BKL_BNV_603_SEC_STL_SOU \ Beam.2
Beam.3	\BKL_BNV_603_SEC_STL_SOU \ Beam.3
Beam.14	\BKL_BNV_603_SEC_STL_SOU \ Beam...
Beam.19	\BKL_BNV_603_SEC_STL_SOU \ Beam...
Beam.23	\BKL_BNV_603_SEC_STL_SOU \ Beam...
Beam.24	\BKL_BNV_603_SEC_STL_SOU \ Beam...
Beam.26	\BKL_BNV_603_SEC_STL_SOU \ Beam...
Beam.27	\BKL_BNV_603_SEC_STL_SOU \ Beam...
Beam.28	\BKL_BNV_603_SEC_STL_SOU \ Beam...
Beam.30	\BKL_BNV_603_SEC_STL_SOU \ Beam...
Beam.31	\BKL_BNV_603_SEC_STL_SOU \ Beam...
Beam.38	\BKL_BNV_603_SEC_STL_SOU \ Beam...

**Report Data**

Template: [Empty]

**Identifiers**

- ☐ Instance Name
- ☐ Part Name
- ☐ Body or Set Name
- ☒ Feature Name
- ☐ Feature Type
- ☐ Full Path

**Calculations**

- ☐ Volume
- ☐ Area
- ☐ Length
- ☐ Coordinates

**Parameters**

Name
------

**Properties**

Component	Property
Member	Section

**Attributes**

Report... Inherit from Ancestor

Package	Attribute
Structural Member Quantities	NominalLength
Structural Member Quantities	GrossVolume
Structural Member Quantities	NetVolume

**Attributes Selection Dialog:**

Attributes	Dictionary	Package
AtBasePackages	IfcQuantities	IfcQuantities
ConstructionAdministration	IfcQuantities	Site Quantities
CVS	IfcQuantities	Building Quantities
DesignCollaboration	IfcQuantities	Building Storey Quantities
DoorsandWindows	IfcQuantities	Space Quantities
IfcProjectStructure	IfcQuantities	Slab Quantities
IfcPropertySets	IfcQuantities	Structural Member Quantities
IfcQuantities	IfcQuantities	Wall Quantities
MasterFormat	IfcQuantities	Opening Quantities
MicrosoftProject	IfcQuantities	
PrimaveraGlobalActivityCodes	IfcQuantities	
Uniformat		
UnspecifiedAttributes		
UnspecifiedGroups		
DrawingProduction		
RevisionTracking		

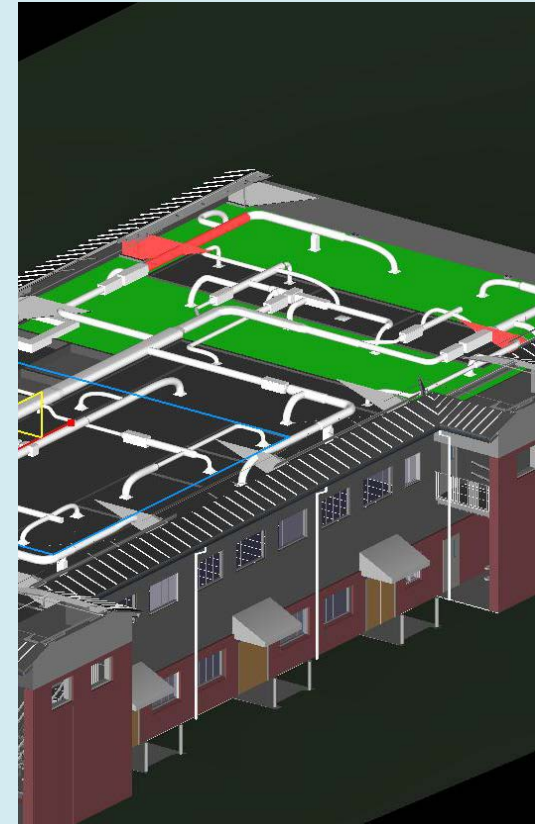
**Properties Dialog:**

Component	Property
Member	Width
Member	Height
Member	Radius
Member	Catalog
Member	Section
Member	StartCoordinateX
Member	StartCoordinateY
Member	StartCoordinateZ
Member	EndCoordinateX
Member	EndCoordinateY
Member	EndCoordinateZ



# 7.6 Construction Models

- 7.6.1 Clash detection/coordination
- 7.6.2 Construction systems design eg formwork
- 7.6.3 Digital fabrication
- 7.6.4 Planning construction scheduling and sequencing – 4D
- 7.6.5 Communication of construction scheduling and sequencing – 4D
- 7.6.6 Site utilisation planning
- 7.6.7 Lift planning



# 7.7 Facilities Management

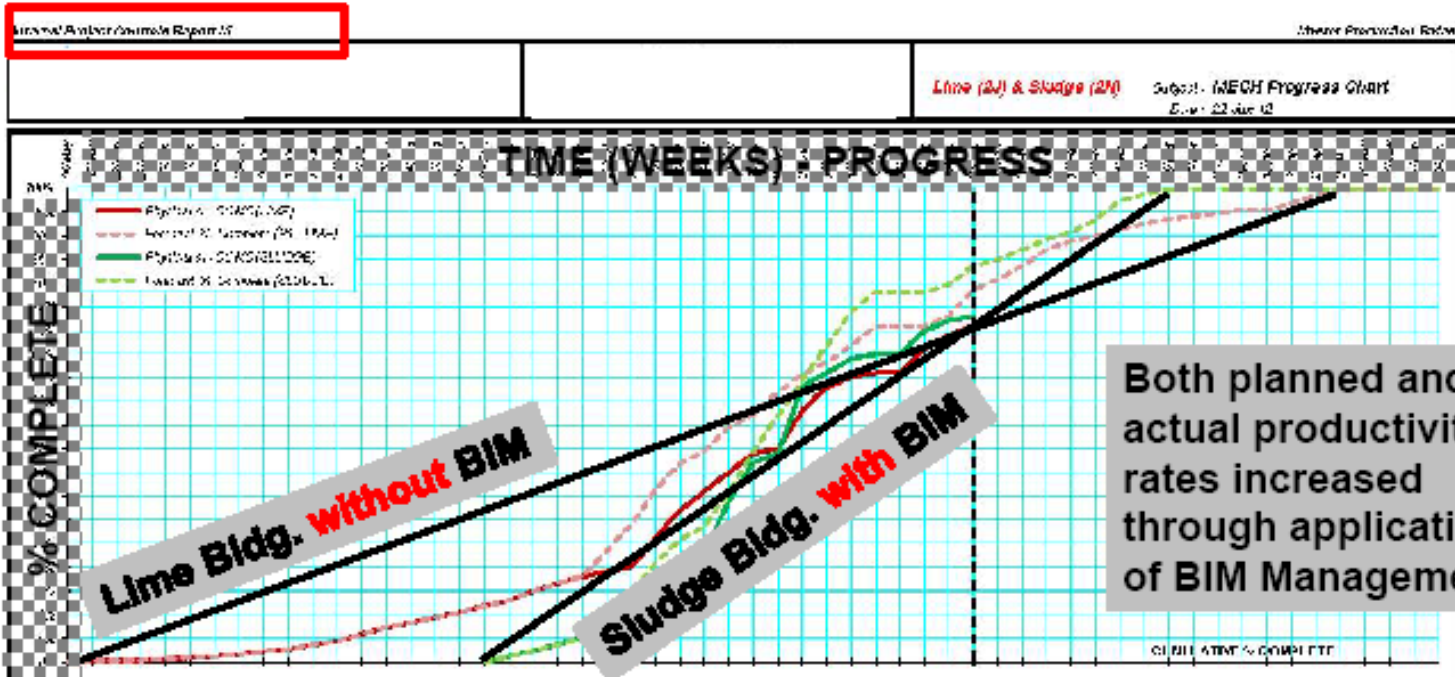
- 7.7.1 Construction Operations Building Information Exchange (COBie) / Commissioning
- 7.7.2 Other FM information handover / commissioning systems
- 7.7.3 Security assessment and disaster planning





# Leighton Holdings

## Productivity Improvements



Date		May 11	Sept 11	Oct 11	Nov 11	Dec 11
Lime Mech. Fit-Out \$3.4m labour, \$6.1m works	Work Progress	5%	18%	29%	45%	61%
	Productivity factors	1.78	1.3	1.28	1.16	1.13
Sludge Mech. Fit-Out \$2.2m labour, \$5.1m works	Work Progress	0%	5%	15%	44%	65%
	Productivity factors	0	0.9	1.62	1.07	1.04
Productivity factor = % labour budget used / % complete						

- BIM Guideline: Team Member Information Exchange: How do I put in (or get) useful information for (from) others to use?
- BIM Guideline: Starting BIM: How do I implement BIM in my Office?
- BIM Protocols for Clash Detection
- BIM Research Project: Using BIM by trades

- BIM Protocols: BIM & Classifications including Mirror Committee to ISO TC59/SC13
- BIM Protocols: BIM & Specifications
- BIM Protocols: Model Requirements along project path, esp LOD 200/400
- BIM Protocols for Quantity Take-off and Cost Planning
- BIM Guideline: BIM & FM

- BIM Guideline: Office Standards for BIM
- National BIM Guide Case Study Reports
- BIM Guideline: Assessing Capabilities
- BIM Guideline: Constructing BIM Models

- BIM Protocols: Generic Objects
- Data Dictionary Australia (addition to BuildingSmart International Data Dictionary)
- Object Library custodianship