Case study of fast-track Design and Construct delivered using BIM
420 Flinders Street

- 7 storey, 12635m² GFA commercial office building
- Base Building Cost - $30,000,000
- Programme - Fast Track Design & Construct
- Subcontractors engaged during DD
- BIM includes;
  - Architecture, Structure
  - Mechanical, Electrical, Hydraulics
  - Fire
  - Steel Fabrication
  - 4D, 7D
Programme

- **APR**
- **MAY**
- **JUN**
- **JUL**
- **AUG**
- **SEP**
- **OCT**
- **NOV**
- **DEC**

**SUBCONTRACTORS (MECH, ELEC, HYD, FIRE)**

- Schematic Design
- Design Development
- Construction Documentation
- Construction

- Basement issued for construction
- Basement slab poured
- Ground slab poured
- Lump sum D&C agreement between client and contractor
Staged Documentation

Issued for construction on
- 30th November
- 9th November
- 7th September
- 29th June
Architectural Revit Model
50% through Construction Documentation
Subcontractor Services CAD Duct / IFC Model
50% through Construction Documentation
Project Team Structure

Arkhfield
(Project Architect & Integrated Delivery Manager)

FM Performance Ideas!
(Facilities Management)

Bornhorst & Ward
(Structural & Civil)

Casa Engineering
(Steel Subcontractor)

VAE Group
(Mech Subcontractor)

WSP
(Hydraulic)

WSP
(Mech, Elec, Fire)

Fireite Services
(Fire sprinklers)

SDF Electrical
(Elec Subcontractor)

Lambert & Rehbein
(Acoustic)

MCG
(Certifiers)

MWA
(Fitout Architect)

BVN
(Landscape)

Cardno
(Hydraulics)

Hollywood Plumbing
(Hyd Subcontractor)

WSP
(Mech, Elec, Fire)

Microfire
(Fire alarm)

Yong Feng
(Screen Subcontractor)

XL Precast
(Precast Concrete Subcontractor)

Inhabit
(Façade engineer)

VAE Group
(Mech Subcontractor)

WSP
(Hydraulic)

Lancini Group
(Client/Building Owner)

Hunter Construction Services
(Client Rep)

Hutchinson Builders
(Builder)

Inhabit
(Façade engineer)

Yong Feng
(Screen Subcontractor)

XL Precast
(Precast Concrete Subcontractor)

Microfire
(Fire alarm)

Legend

Consultant

Sub-Contractor

Contractor

Client

Facility Management

One way digital communication

Two way digital communication

Traditional communication
Model Workflow

Integrated Revit Model

Arkhefield (Architect)
Bornhorst & Ward (Structural & Civil)
BVN (Fitout Architect)

Navisworks Model

VAE Group (Mech Subcontractor)
Casa Engineering (Steel Subcontractor)
WSP (Hydraulic)
Hutchinson Builders (4D)

FM Performance Ideas! (Facilities Management)

Documentatin
Base model 'background'
Dynamic

IFC
RVT

Clash Detection
4D Timelining
Export for FM
Static

Arkhfield
VAE Group
Casa Engineering
WSP
Hutchinson Builders

Bornhorst & Ward
BVN

.get the best from our team
Embracing Change

• Structural engineer modelled concrete to architects dimensional set out requirements

• Architect used structural engineers and subcontractors services models for integrated documentation

• Communication urgency and forward planning

• Prototyping the build
Leveraging Model Information
Additional set out visuals for concrete package
**Project Team Action List**
Contains model views, sketches and notes
## Element Ownership Schedule

Mapping out the dates of ownership exchange

<table>
<thead>
<tr>
<th>Basement</th>
<th>Modeled by BKW</th>
<th>Modeled by AF</th>
<th>Owner</th>
<th>Transfer ownership</th>
<th>comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoring</td>
<td>Y</td>
<td>N</td>
<td>BKW</td>
<td></td>
<td>na</td>
</tr>
<tr>
<td>Pad footings, Pile caps</td>
<td>Y</td>
<td>N</td>
<td>BKW</td>
<td></td>
<td>na</td>
</tr>
<tr>
<td>Strip footings</td>
<td>Y</td>
<td>N</td>
<td>BKW</td>
<td></td>
<td>na</td>
</tr>
<tr>
<td>Piles</td>
<td>Y</td>
<td>N</td>
<td>BKW</td>
<td></td>
<td>Detailed front and backwall structure</td>
</tr>
<tr>
<td>Columns</td>
<td>Y</td>
<td>Y</td>
<td>BKW</td>
<td>6/6/12</td>
<td>AF to declare from model once new structural model received</td>
</tr>
<tr>
<td>Floor Slab</td>
<td>Y</td>
<td>Y</td>
<td>BKW</td>
<td>6/6/12</td>
<td>AF to declare from model once new structural model received</td>
</tr>
<tr>
<td>- Construction joints</td>
<td>Maybe</td>
<td>N</td>
<td>BKW</td>
<td>na</td>
<td>Depend on what HR section for RD</td>
</tr>
<tr>
<td>- Penetrations</td>
<td>Y</td>
<td>Maybe</td>
<td>AF</td>
<td>15/6/12</td>
<td>Anything over 150mm in through beams; AF may not model beam in coordinates</td>
</tr>
<tr>
<td>- Falls</td>
<td>Y</td>
<td>na</td>
<td>na</td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>- Topping slabs</td>
<td>N</td>
<td>Y</td>
<td>AF</td>
<td>na</td>
<td>None</td>
</tr>
<tr>
<td>- Wet area seal downs</td>
<td>Y</td>
<td>na</td>
<td>na</td>
<td>na</td>
<td>None</td>
</tr>
<tr>
<td>- Rebar (Bases, perimeter walls)</td>
<td>Y</td>
<td>N</td>
<td>na</td>
<td>na</td>
<td>None</td>
</tr>
<tr>
<td>Ramps</td>
<td>Y</td>
<td>Y</td>
<td>AF</td>
<td>15/6/12</td>
<td>AF to receive ramp</td>
</tr>
<tr>
<td>Staircase / Dwellings</td>
<td>Y</td>
<td>Y</td>
<td>BKW</td>
<td>6/6/12</td>
<td>AF to receive structural model received</td>
</tr>
<tr>
<td>Plynths</td>
<td>Y</td>
<td>N</td>
<td>BKW</td>
<td></td>
<td>na</td>
</tr>
<tr>
<td>Hobs</td>
<td>Y</td>
<td>na</td>
<td>na</td>
<td></td>
<td>Owner unknown</td>
</tr>
<tr>
<td>Concrete Beams</td>
<td>na</td>
<td>na</td>
<td>na</td>
<td>na</td>
<td>None</td>
</tr>
<tr>
<td>Blockwork walls (load)</td>
<td>Y</td>
<td>Y</td>
<td>BKW</td>
<td>6/6/12</td>
<td>BKW - 23/1/18/18</td>
</tr>
</tbody>
</table>
Integrated Revit Model
(Architectural, Structural and Services)
Integrated Revit Model
(Architectural, Structural and Services)
Sectional views through Navisworks model
Facility Management

- Facility Management is being explored as a pilot project
- Process is more about identification and management of assets critical to operation
- Stakeholder and project team engagement and commitment is key
Facility and Service Management

Welcome to the SmartFM pod of SmartSight. Here Facilities Managers and Trade organisations can co-ordinate service requests, service technicians and suppliers on behalf of their clients.

Service Requests

Trade

Presentation

iBIM Video Demonstration
Why 420 Flinders Street was successful

- We had an opportunity with little risk
- We gained access to the builder and sub-contractors
- We had an existing relationship with the structural engineer
- Opened up communication
  and....
- We were in the right place at the right time