“Efficiency in the Steel Supply Chain”
Using BIM
The McVeigh Way: Core Values

help people to;
change the world whilst;
having fun and;
making money.
The McVeigh Way: The Tool

**one single BIM model** for architecture and structure leading to;

1. More effective communication
2. Higher degree of certainty
3. Faster design and documentation times
4. More efficient structural steel framing solutions
5. **Smarter subcontract procurement methods**
6. **Faster steel supply chain delivery methods**
My background: I’m not a modeler
My background

PROCESSES & WORKFLOWS
 realise that the **steel supply chain** is the **achilles heel** of the majority of developments, especially in the **industrial and retail sectors**

So we started asking the **what if** question. What if we had absolutely no constraints; wouldn’t it be great if we could __________?
So, using the McVeigh Way
how did we revolutionise the traditional workflow of the steel supply chain
and revolutionise the traditional transfer of information

2D → 3D → 2D → 3D → 2D → 3D → 2D

architect    engineer    drafter    detailer
Answer: by working under a BIM focused IPD structure integrated project delivery
how does the 3D transfer of information look?
A real world example – Woolworths Rothwell

- 5,500m² store including 10 specialty stores
- 100t structural steel contract
- ADCO D&C contract
- CNN Architects
- McVeigh Structural Engineers
- SteelCAD Steel Detailers
- Alltype Welding Fabricators
in house QA reviews all performed in 3D – Autodesk Design Review (DWFx files)
in house QA reviews all performed in 3D - TeklaBIMsight (IFC to BCF files)
IFC(A) model transferred from engineer to detailer

- point to point model
- member placement guaranteed
- 100% of the steelwork is modelled including:
  - Purlins
  - Flybraces
  - Bridging
  - etc
- Attributes embedded include
  1. Approval status
  2. Surface finish
  3. Preset information
  4. Detail references

Green steelwork is approved for detailing, grey is yet to be approved.
IFC(A) model transferred from engineer to detailer

red steelwork galvanised, blue steelwork external paint finish, grey steelwork is internal paint finish
IFC(A) model transferred from engineer to detailer
sketched details transferred engineer to detailer
Summary steelwork schedules issued to fabricator for early procurement:

1. Provides certainty
2. Reduces scaling errors
3. Provides more time to procure steelwork

Resulting in 5% better steelwork sub-contractor prices
detailed steelwork schedules issued to fabricator for early procurement
IFC(B) model transferred from engineer to detailer

- red steelwork has changed from rev A to rev B issue
- green steelwork is completely new from rev A to rev B
IFC(a) transferred from detailer to engineer

Coordination between detailers, engineering and architectural model occurs in 3D in Tekla BIMsight with simple overlays

- Full geometry review
- Member size review
- Connection size review
- Surface finish review
IFC(a) transferred from detailer to engineer
BCF(A) comment file transferred from engineer to detailer

IFC(b) transfer from detailer to engineer for final review and approval
detailer produces shop drawings
And the result?

Proposed program under a traditional workflow

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Actual program under the IPD workflow

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- 5 week saving to the steel supply chain
- 3 week saving to the critical program
- 3 week saving to the preliminaries budget, $45,000
- 5% saving to the steel sub-contract, $30,000
- adding 3 additional weeks to earn margins on other projects, $45,000
- TOTALLING a 1.5% saving to construction costs
And the feedback?

Brendan Meikle, Design Manager for ADCO

- “**IPD delivery** method has proven to guide the design and shop drawing process to **manage risk and produce accurate drawings** to build whilst affording ADCO **more time to negotiate subcontracts** to meet budget targets”
- “has allowed us to **meet a fast tracked program and meet target budgets** with the comfort of knowing the **construction documentation is of the highest quality**. If we had of followed a conventional method I am confident to say that this would have put our on site structure activities approx **2-3 weeks** behind schedule, with a higher risk of inaccurate construction drawings which would lead to expensive on site added costs”
- “**IPD has certainly been proven to save time on programme** and provide better opportunity to meet fast tracked programmes with **minimal risk**. It has **provided certainty** that procurement will meet milestones and **lower trade costs** due to the accuracy of quantities. The building industry is forever evolving and IPD is a delivery method which is proven to **provide value to our design and construct delivery methods**”
And the feedback?

Jaron Schubert, Estimator from B&L steel said

- “IFC model method gives us a **40% time saving in estimating** the job”
- “this (method) has provided us the ability to gain accurate tonnage measurements with the **elimination of direct scale inaccuracies**”
- “the ability to navigate through the model enables the erecting team to provide real-time lifting methods therefore **eliminating unnecessary additional costs for equipment and working platforms**”
What’s the recipe for success?

1. **Get the right people** on your IPD team
2. **Leave your ego’s** at the door
3. **Accurate** “preliminary” **designs** within IFC procurement model
4. **Guarantee your model** geometry, no more disclaimers
5. **Ensure all information transfer is controlled**
6. **Take some liability** for your mistakes
What’s next for McVeigh and IPD?

Active projects in the pipeline with an IPD agreement

• Drive Industrial Estate
  • 900t, 45,000m² of speculative warehouse
  • ADCO D&C Client
  • Forecasting $600k saving using IPD

Proposal projects currently in the market

• Woolworths Meadowbrook
  • 6,500m² retail plus 2,500m² commercial
  • ADCO D&C Client

• ALDI Distribution Centre
  • 50,000m² warehouse and cold store
  • ADCO D&C Client
Any Questions?

People adding value