
CASE STUDY:

Mason Bros. Commercial Precinct

 **Beca**

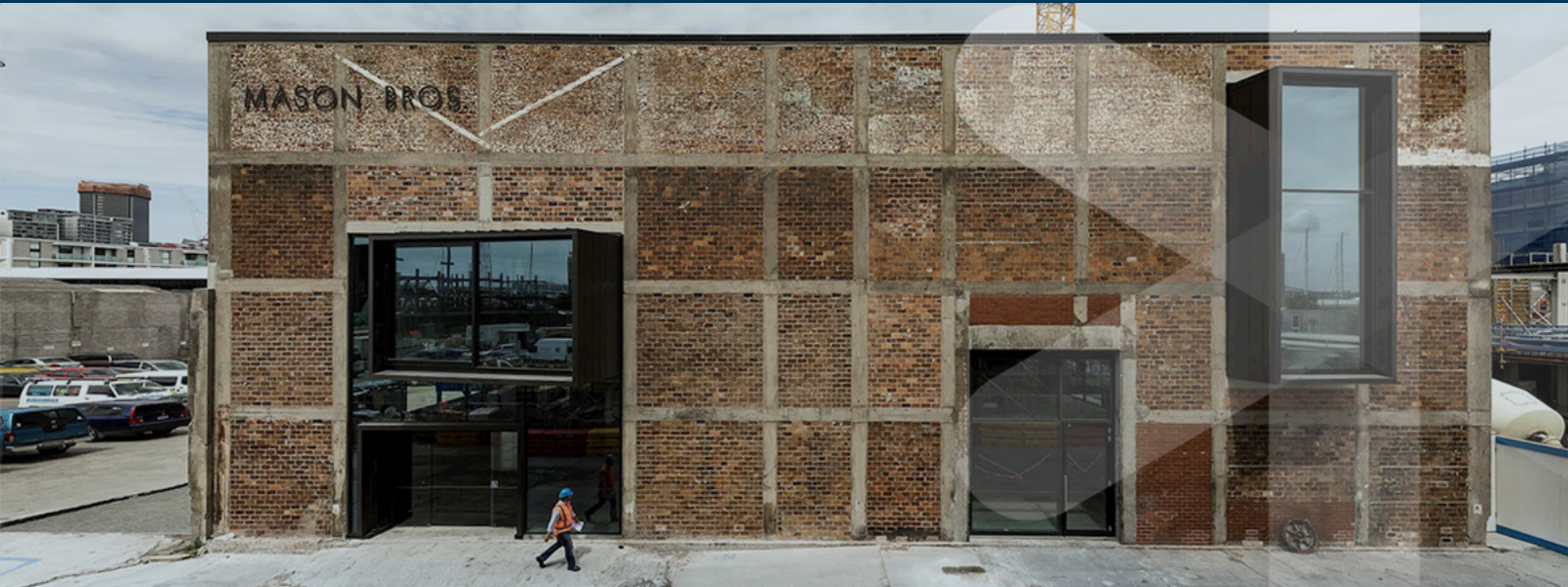


Photo: Dawid Wisniewski

WHAT IS BIM?

Building Information Modelling (BIM) is a digital representation of the physical and functional characteristics of a built asset – everything from bridges to buildings. A building information model is a shared knowledge resource for information about a facility, forming a reliable basis for decisions during its life-cycle; defined as existing from earliest conception to demolition.

The key principle is that BIM is not any single act or process. It is not creating a 3D model in isolation from others or utilising computer-based fabrication. It involves being aware of the information needs of others as you undertake your part of the process.

BIM as a game changer for asset management.

Precinct Properties has transformed the Mason Bros. Building – a character warehouse in Wynyard Quarter on Auckland’s waterfront – into a highly efficient, innovative and functional commercial workspace, enabled by BIM. The project demonstrates how data for asset management can be captured digitally and delivered on site through mobile technology – a New Zealand first and potential game changer. It shows how BIM is integral to improving the quality and usefulness of the information that is delivered alongside a physical asset to inform its future operation and maintenance.

Located on the edge of Waitemata Harbour in the Wynyard Quarter Innovation Precinct (WQIP), the Mason Bros. Building is a commercial development delivering approximately 5,500m² of fluid workspace over three levels for multiple tenants. The project involved repurposing an historic warehouse facility used for the 2003 America’s Cup into a dynamic, commercial environment.

In line with the future-focused WQIP, Precinct Properties were looking for an innovative redevelopment solution that would ensure that the Mason Bros. Building was sustainable and responsive to changing needs. A particular driver was making the building highly efficient to run and using technology to create advancements in this area. Precinct Properties wanted a fully integrated asset information management (AIM) system to achieve greater accuracy in forecasting operating costs and capital expenditure. They sought Beca’s expertise in digital asset information management to make it happen.

“It’s an ongoing data collection process that can be used throughout the building’s life cycle for a variety of different purposes.”

**PAUL SINGLETON, OPERATIONS MANAGER
– AUCKLAND, PRECINCT PROPERTIES**

PROJECT DETAILS

DURATION

May to December 2016 for digital asset information integration

PROJECT PARTNERS

Client: Precinct Properties
Architect: Warren and Mahoney Architects
Main contractor: NZ Strong
Project Management: Beca
Digital asset information management: Beca
3D modelling: asBUILT



BIM USES

The New Zealand BIM Handbook Appendix D defines 21 distinct BIM Uses. For this project the primary BIM Use is:

Asset management

It also supports other BIM Uses including:

Existing condition modelling

Record modelling for future refurbishments

Building (preventative)

maintenance scheduling

The process

The Beca BIM team managed the digital capture of information about the building’s assets, trained the contractor and their supply chain how to input this data during construction, and provided a complete “digital handover” of asset information at the completion of the refurbishment to support the ongoing operation of the Mason Bros. Commercial Precinct.

Beca’s first step was to understand Precinct Properties’ key information requirements for future asset and facilities management and then set up the technology to capture and use that data. These requirements primarily focused on mechanical plant and equipment.

The chosen solution was a suite of Autodesk software including BIM 360Glue, BIM 360 Field and Building Ops, a cloud-based asset management database. This provided a link between information generated during the construction phase and the live asset management database.

The process involved:

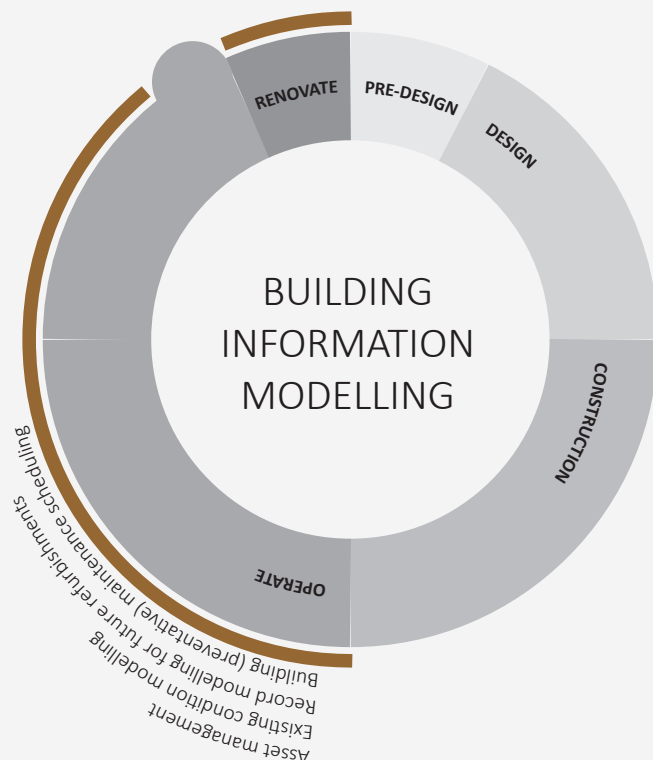
- downloading 3D models and associated data onto mobile devices to take to site
- entering required data through both mobile devices and a web browser interface
- uploading required documentation, such as commissioning documents and operations and maintenance manuals
- linking these to the appropriate assets in the BIM 360 Field environment.

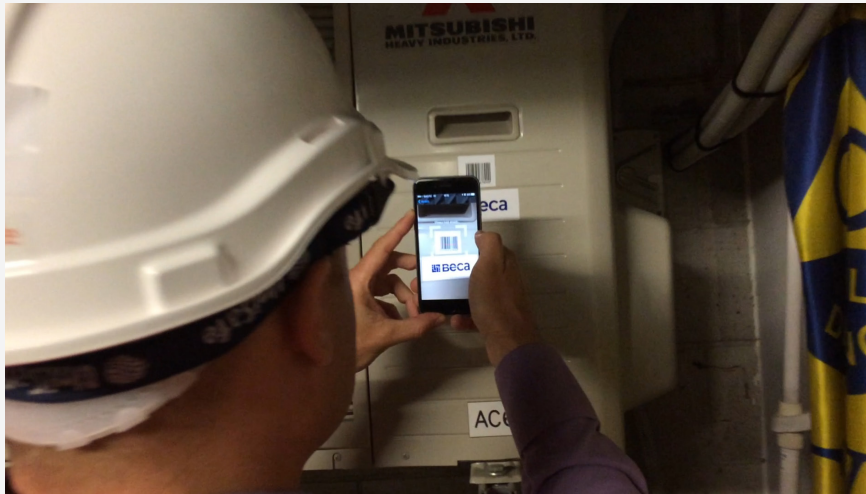
WHAT IS A BIM USE?

“BIM Use – a unique task or procedure on a project which can benefit from the application and integration of BIM into that process.”

THE NEW ZEALAND BIM HANDBOOK.

THIS CASE STUDY HIGHLIGHTS THE VALUE OF USING BIM IN THE OPERATE AND RENOVATE STAGES OF THE PROJECT LIFE CYCLE.





Beca created a central repository for all 3D models, data and documentation so the latest information on the project could be accessed by anyone, anywhere at any time.

Digital dashboards quickly and clearly tracked the contracting team's progress in uploading the required asset management data throughout the construction process. Beca used Tableau to develop the digital dashboards to give an up to date view of the percentage of data being captured in BIM 360 Field. This customised workflow management tool gave the project management team real visibility of the progress of completed asset information and handover deliverables, helping to ensure that 100% of critical digital information was there at project completion.

Barcodes were placed on specific assets so they can be scanned with mobile devices to pull up specific information (within Building Ops) about the asset and its history, on demand.

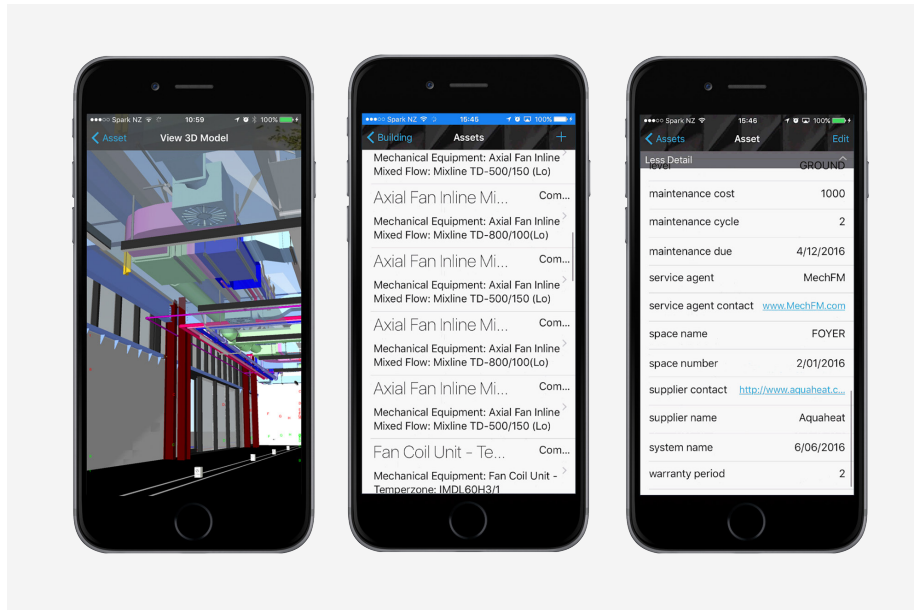
Challenges and constraints

The cloud and mobile technology used by Beca to capture the data required for a digital handover had not been used in New Zealand in this way before. Beca had to resolve challenges with the flow of information between different software applications, becoming a trailblazer in the process.

To make this new delivery method happen, many traditional processes had to change. Due to the contracting team not having used the cloud and mobile-based technology before, Beca led training workshops to share the client's asset requirements and show them how to input data. They also had to identify the best place to create the data; some was produced outside of the 3D modelling process but needed to be linked back into the 3D models for the final handover.

“Leveraging BIM across the project lifecycle with Autodesk tools helped achieve better project outcomes with connected teams in the cloud, reduced project risk, improved worker safety and, ultimately, a smoother handover process so that operations could begin on day one.”

BROOK POTTER, SENIOR BUSINESS MANAGER, AUTODESK



Results and benefits

This is a New Zealand first in mobile technology being used to capture essential asset information for ongoing asset management and operation.

Electronic delivery of data helped drive a far better as-built handover to the client.

Beca championed the implementation of this innovative asset management solution that provides Precinct Properties with detailed, up-to-date, reliable information on the building's plant and equipment.

All of the Mason Bros. Building asset information is delivered on mobile devices, taking a tedious paper-based process into the digital space. Precinct's asset management and operations teams can instantly access all of the 3D models and view where the assets are in the building and the data and documents associated with them.

The BIM-driven solution provides greater efficiencies for:

- scheduling asset maintenance and replacement
- forecasting OPEX and CAPEX through better data availability
- raising work orders
- integrating energy use and building performance
- managing hazards and disaster recovery
- better decision making and strategic planning
- maintaining and updating records.

With critical building lifecycle information at its fingertips, Precinct Properties now uses the digital data in its daily activities. The first time the client searched for a specific asset and an associated document the process took less than 30 seconds.

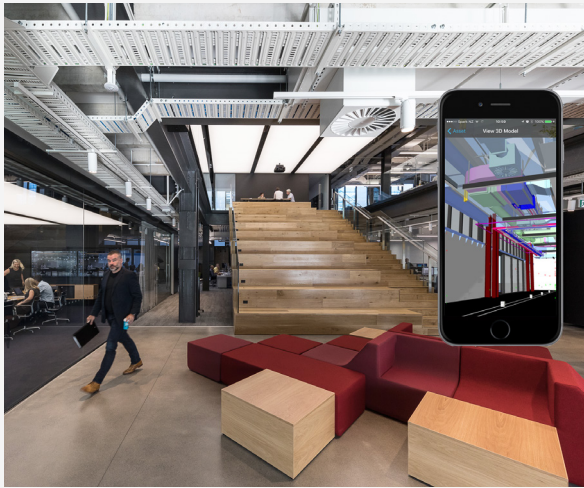
Based on the success of its Mason Bros. experience, Precinct is planning to embed data capture through BIM as a discipline.

“Many people talk about the benefits that BIM can deliver to a project in design and construction. Fewer talk about the benefits that BIM can bring to the asset management and operations stages where the most benefit can be achieved. Beca have been able to deliver something tangible that will provide real ongoing value to Precinct Properties’ asset management.”

DAVE LUXTON, DEVELOPMENT MANAGER, PRECINCT PROPERTIES

“Significant value has been added through consultation with the client on their asset requirements, the selection and implementation of the right delivery method and technology, and training the contractor and their supply chain, culminating in delivery of all critical project data on the operational team’s mobile devices.”

JON WILLIAMS, BECA



Cost considerations

Ready access to building information via mobile devices means fewer site visits are necessary, reducing time and the associated cost and environmental impact of travel. Digital delivery of information has also negated the need to print documents, further reducing costs and the environmental footprint.

The data Beca collected for Precinct Properties will not only help with the development of the Wynyard Quarter Innovation Precinct, it will also assist with their financial forecasting, identifying critical operational costs and when they are likely to occur. Certainty of future financial commitments will improve financial planning and strategic management of the building. The tangible cost savings for Precinct from using BIM for asset management are many, driven by access to information and the resulting time savings for consultancy. The further Precinct Properties develops BIM as a tool for energy management and other operational systems management, the more ongoing operational cost savings can be unlocked.

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WITH THANKS TO



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