

CUSTOMER NAME

Gandy & Roberts Consulting Engineers

LOCATION

Hobart, Tasmania

COUNTRY

Australia

INDUSTRY

Architecture Engineering and Construction

PROJECT DELIVERY DATE

2024-2025

AUTODESK SOLUTIONS

**Revit, BIM Collaborate Pro, Docs,
Navisworks**

Services Provided

BIM Management and structural services delivering innovative, cost-effective building structures as well as environmentally sensitive hydraulic engineering services.

Other Professional Services

Other professional services include training and introduction of relevant BIM tools to project members for efficient cross-discipline model exchange and coordination reviews. Also assists with model handover from design models to production models of mass timber components.

Customer Challenge

It's a challenging program with long lead times for CLT and Glulam timber components. Risk mitigation is another issue to allow reliable pre-fabrication of components. Another big difficulty is the Mass Timber components on this project is part of the base structure. It's one of the first items on a construction program, thus exacerbating the difficulty to order components in time without causing significant delays. In addition, there is concern because of the limited BIM experience of the key project team members, besides communication of design issues effectively among the teams.

BIM Facilitates Design of first Multi-Story Mass Timber Building in Tasmania

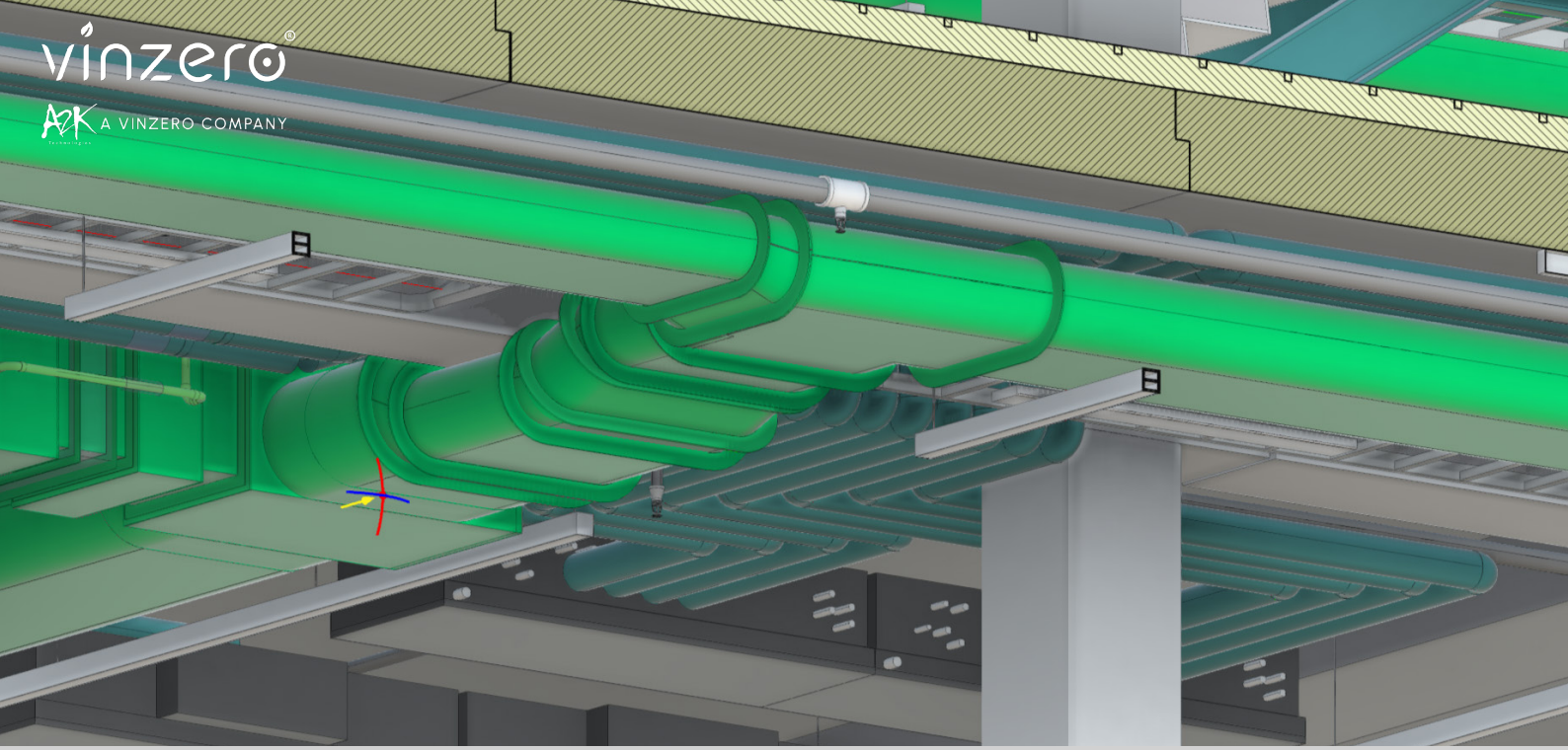


Project Goals

By implementing this project, the client wants to reduce project risks and liabilities, optimise contingencies, and design outcomes, and develop fully coordinated and clash free design models for fabrication handover. They want to get access to a reliable federated coordination model for all project partners as well as visualisation of design issues to improve resolution process.

Solutions

The client used Revit as the main design tool by Architects, Engineers, and Designers. Federation of design models is done in Navisworks and ACC. Timber fabrication models produced in proprietary software are successfully integrated in coordination model using open standard format IFC. Coordination and Clash reviews are done in Navisworks and Docs/Coordinate. This also gave all project partners access to a federated coordination model via Docs, allowing for comments and markups, along with revision tracking by comparing model versions.



Business Outcomes

The solutions delivered helped in completing the design coordination with clash free and thoroughly reviewed models which provides confidence in the design to allow pre-fabrication with limited risks. The design coordination processes also allowed for optimisation of services corridors and reduction of contingencies in the structural components. This concludes in a highly optimised building structure with reduced member depths and optimised material use. Additionally, the design coordination allowed for placement of penetration provisions in the structure for potential future retrofitting of the spaces too in this multi-purpose office building.

Conclusion

The implementation of BIM on this project was driven by the acknowledgement of the long lead times of timber pre-fabrication and the associated risks to order components without confidence that the design is fully resolved and clash free. Mass Timber buildings require a very high level of attention to detail and consideration to future-proof a building during the design stage. There is no room for inconsistencies in the design of all involved disciplines as the CLT and Glulam timber components are prefabricated to mm accuracy with limited contingencies for amendments on site.

Design coordination using managed BIM processes is mandatory to produce reliable design models. The support of project members to participate in BIM effectively by skilled BIM Consultants ensures reliable and accurate information is used without delays due to incompatibility or difficulties in the application of relevant tools. The provision of BIM Management services using established tools like Navisworks in combination with cloud-based collaboration and review opportunities for all project partners was instrumental to complete the design of this challenging project. The CLT and Glulam components can be ordered with peace of mind. The prefabrication of key building components is going to reduce waste and program contingencies during construction.

