

# BIM – collaboration and visualisation tool

Digitisation of the real world into virtual representations is ever increasing. Just as Google Maps has created a virtual representation of roads and places, the local version of the Building Information Modelling (BIM) is a process of doing the same for the built environment.

**B**IMSafe NZ has applications for all vertical and horizontal construction projects, central and local government procurement agencies, health, and safety sector, and architects, designers, engineers, and the technology sector.

Both vertical and horizontal infrastructure projects are said to benefit from using a BIM model to design, plan, and digitally simulate the entire construction process in the virtual world prior to the actual construction.

A BIM model allows all stakeholders, designers, engineers, contractors, and even building users to collaborate in the model space to plan, coordinate, and mitigate building risk.

Currently in New Zealand, the construction industry has the slowest uptake of technology, and subsequently has not made the same productivity gains as other sectors. The BIM Acceleration Committee (BAC) was set up by MBIE to increase the use of BIM in local construction, and the Government Procurement Guidelines now specify the use of BIM on all projects greater than \$5 million.

The City Rail Link (CRL) project and Kiwi Rail are already making extensive use of BIM models to plan projects and mitigate construction risks.

The ability of BIM models to represent a construction process in the virtual world creates a unique opportunity to improve health and safety outcomes on construction sites. Designers and engineers can work with contractors and health and safety managers to identify specific project risks, and then utilise the design process to eliminate these risks, or flag them for when construction occurs. Design mitigation is the most effective and least costly method of improving health and safety outcomes.

Once construction begins, workers will be able to access the BIM models and visualise the risks flagged by the design process. This will enable them to make real time decisions on how to do a particular piece of work in a safe manner.

The project aims to reduce construction injury and accident rates by changing industry behaviour in the way risks are identified and communicated throughout the lifetime of a facility.

BIMSafe NZ is a collaboration between the Canterbury Safety Charter's Professional Services Working Group (PSWG) and the Building Innovation Partnership at the University of Canterbury and funded by ACC's Injury Prevention fund, MBIE's Innovation fund, and in-kind contributions from the PSWG.

The project has a budget of \$1.7 million and will take three years to complete.

The project has three workstreams.

The development of "Best Practice Guidelines" for incorporating Health and Safety Information into BIM models. These Guidelines will form a distinct Chapter of the BIM Handbook, published by the BAC.

Second, a case study where the guidelines will be trialled and tested during a live construction project. The case study is the new ACC building in Dunedin, which is designed by Warren and Mahoney with Ngai Tahu and the ACC Investment arm as the clients.

Third is an education drive, where the resources and guidelines will be promoted to the industry to increase uptake and use. **LG**