

COMPANY
BG&E Pty Ltd

LOCATION
Australia

SOFTWARE
Architecture Engineering & Construction
Collection
Product Design & Manufacturing Collection
Autodesk Construction Cloud

BG&E Revolutionise Engineering Practices

Transforming Project Outcomes With Autodesk's digital Solutions

"BG&E is in quite a unique space at the moment because of the type of projects that we are doing and really we want to be working on projects that are adding value to society and to the planet."

— Vince Betro
Director of Buildings &
Property, East Coast
BG&E



Image courtesy of BG&E Pty Ltd

BG&E's digital transformation with Autodesk Solutions

BG&E is a multidisciplinary consulting business, operating for more than 52 years and with offices in Australia, New Zealand, Asia, London, and the Middle east. The global team has a specialised focus on large-scale infrastructure projects, multi-storey buildings, and most disciplines related to structural and civil engineering.

More recently, the multi-discipline engineering firm have transformed the way they work through investing in, and embracing BIM technologies. BG&E have won larger, more complex projects, expanded their services, and can offer a wider set of expertise.

The challenge

Working on large infrastructure projects, large buildings, as well as structural and civil projects worldwide means transitioning to new digital solutions and work-flows, such as BIM, Revit and other Autodesk software previously not utilised at BG&E.

Using new software on a project for the first time requires strategic planning, investment in training and infrastructure, effective change management, and a commitment to continuous improvement and innovation.

Autodesk solutions help BG&E work with greater accuracy, improved efficiency and communication

The solution: Leveraging Autodesk Solutions for greater accuracy and efficiency

BG&E tackled the challenges posed by these projects through the implementation of Autodesk solutions such as Revit, Construction Cloud, and BIM360. These technologies have enabled the company to work with greater accuracy, improved efficiency, and enhanced communication.

The Quay Quarter Tower Project

One notable project where BG&E leveraged Autodesk solutions was the Quay Quarter Tower project in Sydney, NSW. BG&E played a vital role in providing structural and construction engineering services, as well as material testing services, for this ground-breaking endeavour. The project involved the unique task of demolishing and reconstructing one side of the existing 51-story tower while simultaneously retaining and refurbishing the other side—a feat never before attempted.

The QQT Project was a huge undertaking where BG&E were to retrofit an existing 51 storey building that had been built in the 1970's. The ambitious and environmentally sustainable design involved precise modelling and documentation of the existing building design using the existing imperial-scale drawings, which was to be undertaken before demolition, refurbishment, and further construction could take place. One third of the existing floor plate was to be demolished down to the ground floor, with a new floor plate grafted on to essentially double the existing floor plate area and allow for the redesign and expansion of one side of the tower. Autodesk solutions, including Construction Cloud and Revit, played a crucial role in solving clash detection issues digitally before commencing on-site work. Additionally, software like Recap facilitated highly precise modelling through site inspections, ensuring seamless integration with the existing structure.



Image courtesy of BG&E Pty Ltd

While the use of Autodesk Construction Cloud and Revit allowed advanced clash detection and model accuracy, the BG&E team still required a solution to enable online collaboration with stakeholders, as well as their offices throughout Australia. To address this requirement, the team turned to BIM360, which is included in Autodesk Construction Cloud. By leveraging the digital solutions at their disposal, BG&E were able to collaborate with various stakeholders, as well as design teams situated in Melbourne, Perth, Sydney, and external consultants. The team employs Autodesk Inventor for aiding in the 4D simulation of cranes, machinery, and additional temporary components. Subsequently, these simulations can be seamlessly integrated into Revit to enhance collaborative efforts.

The enhanced collaboration also allowed the BG&E team to develop in-house work flows, resulting in substantial savings of over 12,000 tons of embodied carbon, reduced costs, minimised impacts to the environment, and overall reduction in construction time.

By capitalising on Autodesk's unique engineering solutions and software ecosystem, they were able to transform their existing project delivery processes. The integration of Revit, Construction cloud, Inventor and BIM360 has allowed the team to develop their existing proficiencies in accuracy, efficiency, and communication even further, solidifying their position as an industry leader when it comes to complex projects in the construction industry.

The result

BG&E's completion of the Quay Quarter Tower, along with many other projects throughout Australia and globally, have been shining examples of the benefits using Autodesk solutions has when it comes to digital models, data accuracy, data management, and the greater value they're now able to deliver to clients.

To learn more about BG&E Projects visit:
<https://bgeeng.com/projects/>

To learn more about BG&E's use of Autodesk solutions visit:
<https://www.autodesk.com/customer-stories/bge-digital-transformation>

To learn more about Advanced Spatial technologies visit:
<https://advancedspatial.com.au/>

"Technical excellence is what we thrive on, it's what has won us work in the past. Over the last 10-14 years we've been able to leverage a lot of our digital efficiencies and build that into our design workflows"

— Araj Lal

Senior Associate - Structures
- BIM