

Case Study:

From design to as-built verification

Reducing discrepancies by automated checking

Introduction

Boustead's Real Estate Division – best known as Boustead Projects Limited (SGX:AVM) – delivers progressive engineering expertise in the design-and-build and development of smart eco-sustainable business park and industrial developments.

For more than two decades, Boustead Projects has actively shaped and transformed Asia's industrial real estate landscape, by delivering pioneering eco-sustainable developments.

The company has constructed more than 3,000,000 square metres of real estate in Singapore, China, Malaysia and Vietnam, for clients including Forbes Fortune 500, S&P 500 and Euronext 100 corporations.

The Division's green building credentials are also testament to the value Boustead places on sustainability – with Boustead Projects considered a leader under the BCA's Green Mark Scheme and the US Green Building Council's Leadership in Energy & Environmental Design (LEED) Program.

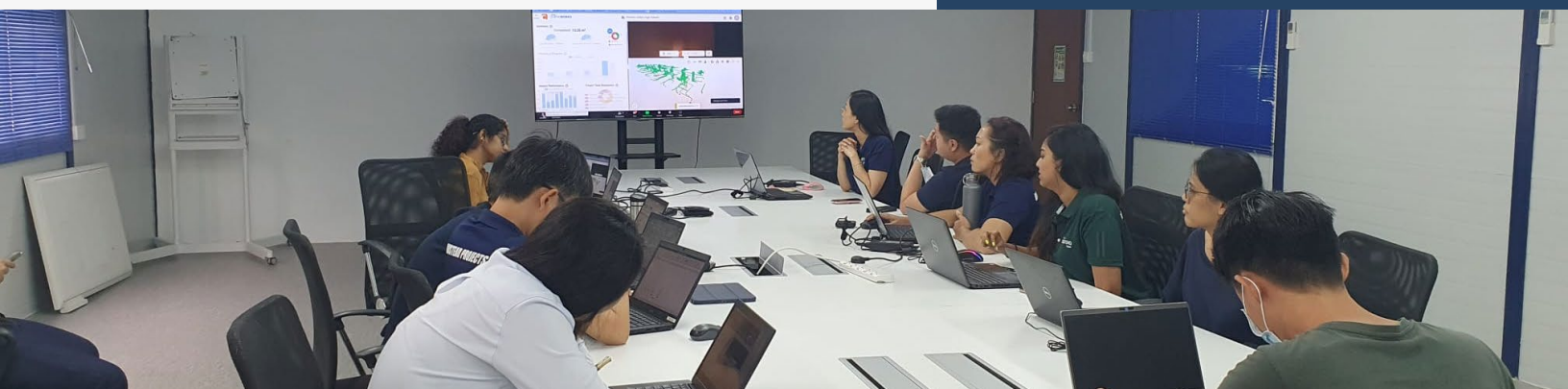
On-site inspections
were reduced by

50%

when implementing
CupixWorks for virtual site
inspections and

83%

less time and effort was
required when preparing
data using CupixWorks,
making it easier to
create accurate and
actionable insights.



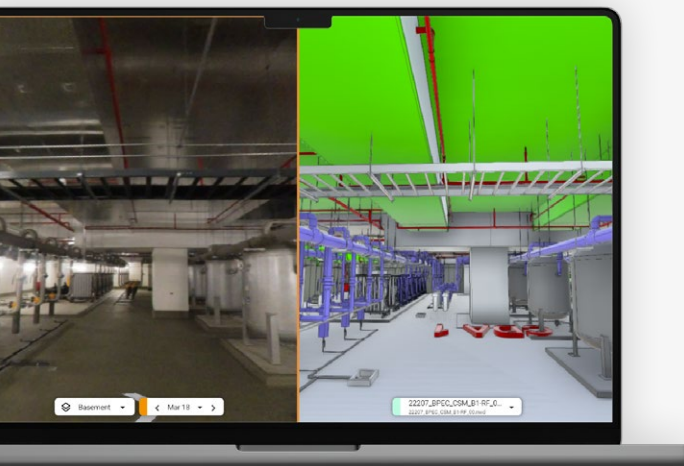
Challenges

As Boustead Project's projects grew in complexity, their manual data capture methods via multiple screenshots from a mobile phone became cumbersome. Boustead Projects in 2022 commenced researching leading edge reality capture technology to integrate with 360 cameras to future proof their workflow processes and to:

- Explore further use of VDC technologies to capture real time updates on the jobsite.
- Develop as-built verification methods to make more informed decisions.
- Identify deviation from design on jobsites with actionable insights to prevent discrepancies.
- Replace manual screenshots with reality data capture via AI.
- Streamline data capture processes and reduce data inconsistencies.
- Explore how to be more efficient and productive via construction technology with limited human interaction such as during the COVID crisis.

Four years ago when COVID hit, we wanted to explore “human intervention labour site technology” and future proof our business should another disaster such as COVID occur,” said Khalil Bin Shaiful Bahari, Senior VP, Group Technology Office, Boustead Projects in Singapore. “When reviewing the market, we were seeking out the ability to look at site progress, identify discrepancies and validate our as-built progress with AI. The final decision was Cupix, after reviewing other data capture technologies”

Muhammad Khalil Bin Shaiful Bahar
Senior VP, Group Technology Office
Boustead Projects



Implementation of CupixWorks

Boustead Projects has been in the forefront of innovative construction technology for many years. They were one of the first Singaporean companies to use 360 reality photo capturing, by standardising on Cupix and 360 degree cameras. This integration along with ACC (Autodesk Construction Cloud) streamlined workflows, enhanced data capture and improved as-built project visualisation through BIM (Building Information Modeling) photo comparison with the field.



Benefits and Results

Cupix offers advanced spatial digital visualisation tools that enable users to capture real time data and automate progress tracking. In addition:

- Seamless Integration with BIM**
 Cupix integrates effectively with existing BIM platforms, allowing for smooth incorporation of visual as-built progress into Autodesk Construction Cloud, and other Construction platforms.
- Automated BIM Deviation Check**
 BIM Deviation Analysis provided insight into how well the design was translated on-site. Identifying these deviations proved invaluable in creating an accurate as-built BIM Model.

- AI and Analytics**

Implementing AI tools for actionable insights helping identify patterns, forecast project risks, and enhance overall project management and workflow efficiency.

- Automated Progress Tracking**

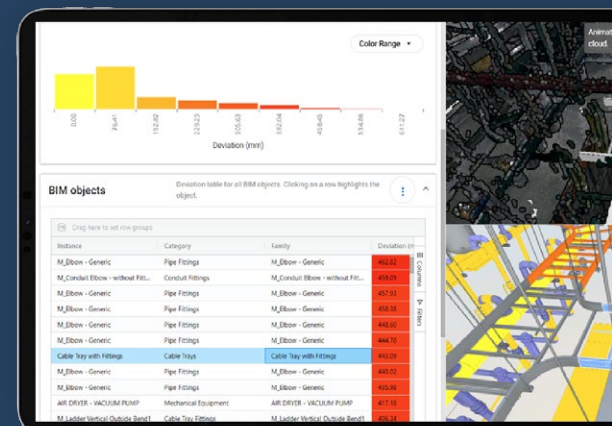
The integration of Cupix with Autodesk Construction Cloud enabled automated progress reporting, reducing manual entry and discrepancies whilst leveraging AI to reduce human error.

- Quality Control Features**

Visual as-built inspections: Cupix's 360-degree imaging allows for real-time data capture, making it easier to identify discrepancies and identify comparisons with the BIM model.

- Support and Resources**

Cupix provides local customer support and training from day one, ensuring that Boustead can access assistance and share best practices.



Future Plans

Boustead Projects plans to continue to standardise on Cupix across the enterprise on multiple projects. The management team is also exploring additional applications of the platform to integrate with robotic vendors and machine learning to achieve even more optimal results and future proofing the business.

Conclusion

By leveraging Cupix and 360-degree cameras, Boustead Projects incorporated CupixWorks' BIM Deviation Analysis, (paired with actionable insights), to understand their performance dynamics and make informed decisions by way of AI. By systematically identifying and addressing the deviation variances, Boustead optimised workflows, and achieved strategic human capital reduction goals.

