

Buildings

Complex, state-of-the-art STEM building for North Queensland

Situated amidst the landscapes of tropical North Queensland, the Engineering and Innovation Place (EIP) at the James Cook University (JCU) Bebegu Yumba Campus has been delivered as a leading-edge building for STEM disciplines. Spanning four stories and covering an impressive area of 10,033 m², this facility has been meticulously crafted to serve as a hub of innovation, fostering collaboration and learning amongst students, industry partners, and researchers.

The interdisciplinary teaching and learning spaces include:

- Advanced Manufacturing Studio
- Computational Digital Studio
- Collaborative Digital Studio
- Shared Wet / Dry Laboratory
- Shared Research Laboratory
- Multi-Modal Studio Peer-to-Peer Learning / Student Hub
- Structures Laboratory
- Garage Innovation Space
- Observation Studio

Trusted delivery partner

BESIX Watpac recently wrapped up work on its third project at the JCU Bebegu Yumba Campus, marking another milestone in its collaboration with the university. The EIP now stands proudly alongside other major buildings constructed by BESIX Watpac: the Australian Tropical Science & Innovation Precinct (ATSIP) and the Australian Institute of Tropical Health & Medicine (AITHM) Translational Research Facility (TRI). The company has also completed the Ideas Lab for JCU in Cairns and was recently awarded stage 2 managing contractor status for the JCU Cairns Tropical Enterprise Centre (CTEC) – the fifth project with their long-term client. With a client-contractor relationship spanning 15 years, BESIX Watpac's collaborative approach was instrumental in successfully delivering the highly complex EIP building.



I commend the way the BESIX Watpac team has come together and collaborated with the client and consultancy team to resolve multiple challenges. This building is an iconic structure and one we can all be proud of at BESIX Watpac.

Glen Watson, BESIX Watpac Northern Area Manager

Project details

James Cook University Engineering and Innovation Place

Location

Townsville, Queensland, Australia

Timeline

2021 - 2024

Client

James Cook University

Architect

KIRK

Contract type

Build

Complexity

A remarkable building unlike any other that BESIX Watpac has delivered in the region, almost every aspect is bespoke. The building features challenging design elements and multiple teams have worked together seamlessly to bring the finished product to life, faithfully realising the vision of project architect, KIRK.

Features include a sizable overhang to the front corners of the building and an expansive atrium showcasing an internal steel cantilevered stairwell and extraordinary timber-lined oculus that welcomes natural light. Timber features prominently in both the interior and exterior of the design, which also incorporates glass and zinc finishes into the façade.

The building has several important features engineered to withstand the extreme environmental conditions of the region. This includes a façade that is impact-resistant to wind-borne debris. The entire building, including fit-out and services, is built to stringent EDCII earthquake standards. Building to these requirements meant the team carried out exhaustive performance tests on almost every individual component of the exterior skin. The building envelope is also tightly sealed to protect against heat and humidity, with the team having drawn on their expertise to develop the best methodology for insulating this intricate structure.



Sustainable solutions

Social

The project is a shining example of BESIX Watpac leading the way in creating opportunities for Indigenous participation, local engagement, and providing pathways for the next generation of construction professionals.

BESIX Watpac is committed to building meaningful and sustainable opportunities for Australia's First Nations people. To achieve this, the company embeds systems and practices within its projects to engage with the Indigenous workforce and businesses. At the outset of the project, a goal of achieving 3 % Indigenous participation was established. Through a collaborative relationship with our subcontractors, steering committee, and JCU, combined with a highly committed team, BESIX Watpac not only exceeded this target but achieved close to 5 % Indigenous participation.

BESIX Watpac also worked closely with JCU, industry bodies, and local schools to provide education and employment pathways, and frequently engaged with the University's engineering students to elevate their learning.

Environment

The building is targeting the international LEED Gold rating and is designed to maximise passive cooling by leveraging low-energy active systems. Building a large-scale institutional facility that heavily utilises passive cooling is a benchmark for a tropically located building.

The central atrium will operate in a mixed-mode environmental setting controlled by a Building Management System (BMS). This will provide it with the ability to run as an air-conditioned space during hot and humid conditions and also as a naturally ventilated space during cooler seasons with lower humidity.

Given the educational setting, the sustainability strategies are straight-forward and not reliant on expensive or specialised, technically-driven systems. The aim was to demonstrate to students that sustainable design is about innovation and should work in harmony with the natural environment.

