



## Award-winning architecture at new TAFE

Architects and designers are rethinking the way they create modern education buildings, putting the student needs at the forefront of design.

Testament to this is a recent addition to Western Australia's Murdoch Campus of the South Metropolitan TAFE. Designed by Armstrong Parkin Architects, the new T Block building is a fine example of a contemporary design that enhances the overall campus experience. So much so, that it was recently awarded the highest honour for Best Educational Building in the \$20 – 50 million category at the 2018 Master Builders Excellence in Construction Awards.

Located adjacent to the iconic Fiona Stanley Hospital on Jennalup Street, the 11,000m<sup>2</sup> building has a significant focus on enhancing the student experience. It is a three-level structure with mixed educational, administrative, and commercial facilities that provides full support to students and staff while also enabling real-work style training.

### A NEW IDENTITY

Exhibiting a contemporary design where learning meets the workforce, T Block offers students and staff a remarkable venue with architectural accents. Most notably, the building features a precast concrete screen façade that has fulfilled structural and aesthetic ambitions.

It is a striking screen that has a dual function—to simultaneously provide shade to the glass curtain wall and to stand out as an architectural feature. In doing so, the screen also provides a substantial 120-metre-long verandah to the major street frontage and offers privacy and comfort to the internal occupants, without hindering the campus view.

Director of Armstrong Parkin, Stephen Parkin, says precast concrete was specified in the early design phase. "The client wanted the building to provide a new identity for TAFE in the Murdoch precinct," Mr Parkin reveals. "We chose precast because it was one of the only materials that could achieve the lattice design."



#### **Precaster**

Delta Corporation

#### **Location**

Murdoch, WA

#### **Client**

Building & Management Works

#### **Architect**

Armstrong Parkin

#### **Builder**

EMCO

#### **Engineer**

Airey Taylor Consulting

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## AN OFF-FORM CLASS 2 FINISH

The façade specifics were intricate and complex, and the resulting design is a uniquely-shaped lattice with a smooth Class 2 off-form finish to all surfaces.

National Precast member, Delta Corporation, manufactured 76 irregular-shaped lattice panels for the project. Delta's Executive Director, Matt Perrella, says his team developed a successful mix design using white cement with the addition of white oxide. "Two prototype panels were produced to ensure that manufacture was possible and that the specified finishes were achievable," Mr Perrella details.

## MINIMISING STEELWORK

Airey Taylor Consulting were engaged as the civil and structural engineers for the project and Director, John Taylor, says the elegant design of the façade panels have inherent spanning capabilities of up to 3.6 metres.

"As the panels are transparent, it was intended to minimise the background steelwork and so they are supported near each corner. Vertical outriggers attached to the building were aligned with the panel joints and four arms extended out to pick up the corners of the adjacent panels," Mr Taylor explains. "The panels were arranged so that they could be rotated 90 or 180 degrees and so that the ribs matched the adjacent panels."

Although designed for wind and earthquake loading, it was the self-weight of the panel and transport that governed the design, in particular where the panel cast-in support socket was located on an outer rib and was subject to bending.

## COMPLEX DESIGN MOTIVATES A REWARDING OUTCOME

The intricate design of the screen façade alongside the need for a high-quality finish posed a challenge for all stages of the project, particularly during the initial manufacturing phase. The multiple shapes and thin walls within the screen meant that the panels could not be reinforced with conventional reinforcement.

Delta was invited to help develop a solution that hinged on the use of stainless steel fibre for the reinforcement. This resulted in the panels meeting the design requirements while also having sufficient structural strength.

The handling of the panels presented a further challenge during delivery and installation. "The fragile nature of the panels meant that great care and attention to detail was essential to ensure minimal risk of damage," Mr Perrella says. "A special steel-handling frame was fabricated to minimise the stresses on the screen panels during the entire process."

## A SUSTAINABLE RESULT

T Block has achieved sustainability in every way. Delivering both beauty and practicality, it is sure to revolutionise the approach to educational building designs while simultaneously improving the wellbeing of students and staff. Suffused with a conscious connection to education and industry, the building fosters a real sense of student gravitas.

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