

A PLACE TO CONNECT

DEVELOPER : Curtin University of Technology
CONSTRUCTION COMPANY : Georgiou Group
ARCHITECTS : GHD Woodhead
PROJECT VALUE : \$40 million



Curtin University's new Medical & Teaching Facility incorporates a mix of formal and informal learning areas highlighted by state-of-the-art audio visual, communications, IT and security services, encased in a unique curved precast concrete façade.

With an established reputation for high quality commercial and residential developments, Georgiou were charged with the construction of Building 410 – The Curtin University Medical and Teaching Facility on the Bentley Campus in Western Australia in June 2014.

The \$40 million contract involved the construction of a 5-storey learning complex with a total of 6,350m² of floor area of conventional and informal learning areas. Scope of works involved extensive landscaping and public art to provide a comfortable and attractive environment for students and staff.

This complex, intelligent and challenging architectural design was finished with exposed concrete and in-situ beams with feature textured surfaces specified in keeping with the high quality finishes of surrounding buildings on the campus. They also present a careful choice and consideration of materials as this building, once finished, will set a precedent for the ongoing development of the campus. The external façade will also feature curved precast wall panels, manufactured using coloured concrete and a high class surface finish, providing vertical fins on the building façade for shading purposes.

This extensive and tight build saw large beams propped up and walls tied in temporarily until the roof was installed. The build required detailed planning and forethought as the precast beams were held in place for significant amounts of time, often taking up most of the room on the work site. This required management to be stringent and work portions arranged carefully to avoid any delays to the construction programme.

Project Manager James Burrows says, “we had the experience and efficiency to handle different trades working concurrently where everything had to come together and fit precisely before we could move to the next stage of the program. This involved managing precast elements, the conventional in-situ and the precast hollow core slab.”

The main characteristic of the buildings' interior is the atrium, spanning five levels.

A modern and elegant element, bringing the outside teaching space in.

One of the most innovative and striking features of the interior is the substantial amount of timber finish used to line the main entry, stretching the full height of the atrium. Timber fractal lining, 3D wall paneling was used with numerous peaks, returns and troughs as opposed to a traditional flat wall paneling. The treatment and finish to the external walls was a modern take on the off-form concrete found on existing buildings on campus, using precast concrete panels with an ultra white coloured concrete.

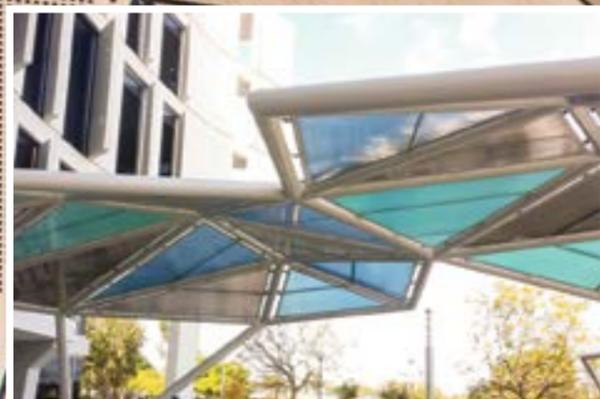
The curved, precast wall panels featured in the wrap section of the building come with peel back, silver shading, manufactured using a high class surface finish, providing vertical fins on the building edges for shading.

The landscaping was broad, showcasing unique elements such as public art fabricated to provide a comfortable, attractive and inclusive environment for students and staff. Additionally, outdoor teaching pods highlight the central theme of the main building – creating a unifying space.

Established in 1977, Georgiou Group is one of Australia's leading building and civil construction companies, delivering a wide range of engineering services across Western Australia, New South Wales, Queensland and Victoria.

Specialising in earthworks, roads and bridges, building construction, precast, land development and water infrastructure, Georgiou believes in working alongside their clients and partners to achieve the best possible results. They're ability to provide a competitive price point to building programmes and their reputation for delivering quality developments will see Georgiou continue to solidify their position as 'the best people to work with'.

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Place Laboratory are the landscape architects in charge of the design and development of the public realm for Curtin University's Medical and Teaching Facility known as Building 410. Curtin University had a strong investment and value on place activation. PLACE Laboratory's brief was to build upon the University's desire for places and spaces within the campus that are people focused, welcoming, and vibrant learning and work places for students, teachers, and staff.

Place Laboratory's Anna Chauvel states, "the architecture is quite exciting, there was the challenge of bringing that design language into the public domain and making it read as one integrated space."

The planned building originally was located at the northern edge of the campus in an old carpark which meant Place Laboratory had to create a new road network in order to give the facility a street address.

The adjoining street is tight, with a strong pedestrian focus and a city character and scale. Careful consideration was given to the choice of materials. The final material palette had to meet aesthetic, functional and value for money requirements "As they will set a precedent for the ongoing development of the campus," adds Anna.

"We asked Georgiou to construct a sample panel of all the streetscape materials so they could understand the expected quality of finish and how the different materials worked together."

A range of activities have been accommodated in the courtyard adjoining Building 410 including a learning pod with free wifi access and recharging stations, sheltered gathering spaces for students to hang out and meet friends, space for a food van and access to a cycle hub. The design of the outdoor environment is a dynamic and inspirational place for people to gather and use.

Place Laboratory have been practicing since 2010, with a team of eight qualified landscape architects have built up an impressive portfolio of people focused public realm projects. "We ensured a strong rapport with the university as we specialise in place activation: it is one of our core values and one of the things that defines us." Creating, thriving places for communities.

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GHD Woodhead was engaged by Curtin University to provide architectural and interior design services for the new Building 410 incorporating the recently announced Curtin Medical School.

GHD Woodhead, through a comprehensive stakeholder engagement process, has provided a design that responds to the needs of the users, the local environment and beyond in line with the ambitions of the Curtin University Masterplan.

GHD Woodhead's design has been developed with an iterative process that was developed through constant feedback and communication with the client and the user groups. Receptive to, and influenced by other buildings on the campus, the design integrates and complements the University's vision to build a city, not only for students but residents as well.

Taking Curtin University's vision forward into reality, the GHD Woodhead design team researched, developed and provided intelligent solutions to meet the brief and create a challenging and adventurous building at the forefront of design.

GHD Woodhead's Mike Buttery adds, "We challenged the structure and pushed the boundaries and capabilities of the form. The entry

at Level 2 is under one of the largest cantilevers in Perth... It is an integrated design, with the atrium as the focal point of the interior space and all dedicated spaces flow around the building's core".

"At GHD Woodhead we aim to get the best outcome for our assignment by bringing in the right team, communicating clearly, constantly, and by providing weekly feedback meetings. Good communication is the key to GHD Woodhead's success," adds Mike.

Building 410 is the first project built in the northern precinct of the Bentley campus as part of the Curtin Masterplan and is critical to the future development and ongoing construction programme of the University.

GHD Woodhead specialise in architecture, interior design, planning, urban design and landscape architecture.

For more information contact GHD Woodhead Pty Ltd, 999 Hay Street, Perth WA 6000, phone 08 6222 8222, website www.ghdwoodhead.com



Curtin University demanded a world class audio visual and unified communications equipment solution to meet the University's exceptionally high standards.

CHW Consulting was engaged by Curtin University to design, document and manage the delivery of the integrated solution, a total investment in technology across the facility of \$3 million. The outcome is a state-of-the-art teaching facility that will place Curtin University at the forefront of medical learning and clinical skills development.

The new building has 5 floors consisting of 11 teaching spaces, 24 clinical spaces and 4 internal meeting rooms that meet the vast needs of the School of Medicine, with the largest space highlighting a fully featured video conferencing suite serviced with an automated camera tracking system.

The ground floor showcases the architecturally stunning mosaic video wall incorporating Planar tiles whereas the third level features the bulk of the teaching spaces, including a 72 person flexible distributed learning Space. With the University's distance and collaborative teaching program in mind, this space allows for learning material to be presented and distributed through video conferencing facilities.

The building is also home to a huge 180 person collaborative teaching space that is now the largest on campus, featuring video conferencing hardware and auto-tracking cameras to capture student participation. Teachers have the ability to zoom in and focus on students in the classroom as they speak and present.

CHW Consulting's background in the design and integration of technology in teaching spaces supported Curtin University's project team by closely coordinating the solution with the Architect and other engineering services. The greatest challenge was to successfully implement high quality audio and interactive video in large, flexible teaching spaces, which allowed both traditional content presentation and collaboration between students and teachers.

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Arup provided fire engineering services for the Curtin University School of Medicine. Project leader and Senior Engineer Darren Horan, was responsible for the fire engineering design, development, documentation, building permit issue, and certification on completion, for the new School of Medicine.

Their design had to realise the architectural vision for the development, and achieve an acceptable standard of fire and life safety to meet the Building Code of Australia (BCA) and approval authorities requirements. This was achieved by a combination of compliance with the prescriptive provisions BCA, and a performance based approach.

A challenging feature of the building was the central open atrium connecting the ground and four upper levels. In terms of fire safety the central atrium presented an open route through which fire and smoke could potentially spread to multiple levels. BCA provisions required fire separation between the atrium well and the adjacent areas.

Arup worked to realise the client's vision, using a performance based approach to address and reduce this risk. They used a fire sprinkler system, automatic fire detection, an alarm system and a dedicated smoke exhaust system as part of the building solution.

A strategy was developed to facilitate the open atrium connecting all five levels and the open stairway so it could be used as an exit. Arup Engineer, Yue-ci Zhao, undertook a Computational Fluid Dynamics (CFD) analysis. Modelling was also undertaken to simulate smoke movements under different fire scenarios to determine if the open stairway would be suitable for egress.

Arup provided extensive, un-paralleled, expertise and knowledge to the project which ran over three years. With over 13,000 professionals working from 12 offices across Australia, Singapore, Indonesia and New Zealand, from which they offer a range of services. Arup currently has over 35 fire engineers across the Australasia region.

The company's core objective is their commitment to their clients, recognising each project is unique, and using a proactive and innovative approach to each construction project.

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