ACSENSW Annual Awards

CELEBRATING EXCELLENCE IN STRUCTURAL ENGINEERING

MONDAY 6 DECEMBER 2021

DIGITAL PROGRAM

ACSE Annual Awards



MONDAY 6 DECEMBER 2021

AWARD CATEGORY SPONSORS

SMALL BUILDING PROJECTS







MEDIUM BUILDING PROJECTS







LARGE BUILDING PROJECTS



FEMALE ENGINEER OF THE YEAR



EMERGING ENGINEER OF THE YEAR



ACSE Annual Awards



MONDAY 6 DECEMBER 2021

RUNNING ORDER

6.30pm - Guest arrive & log in via Zoom

6.45pm - Official Proceedings commence

7.00pm - Building Categories commence:

SMALL BUILDING PROJECTS MEDIUM BUILDING PROJECTS LARGE BUILDING PROJECTS UNUSUAL BUILDING PROJECTS SUSTAINABLE STRUCTURES PROJECTS

7.45pm - People Categories commence:

FEMALE ENGINEER OF THE YEAR EMERGING ENGINEER OF THE YEAR GOLD MEDAL AWARD



8.15pm - Official Proceedings conclude





SMALL BUILDING PROJECTS

1. LAVENDER BAY HOUSE - SDA STRUCTURES

2. SMART DESIGN STUDIO - NORTHROP

3. PALLAS HOUSE - XAVIER KINGHT

4.45 MURRAY STREET - XAVIER NIGHT

5. BILGOLA BEACH HOUSE - PARTRIDGE

6.57 OCEANO STREET - RISE ENGINEERS



LAVENDER BAY HOUSE

SYDNEY, NSW



This project demonstrates the role that a structural engineer plays in the realisation of complex architecture through close collaborations, creative ideas, and robust structural concepts. The project involved demolition of the existing house on the site, detailed excavation into rock behind a retained heritage sandstone wall, and the construction on a new 4 storey house. The house has an expansive living area at the top level to take advantage of the views to the harbour bridge, city, and opera house. Design commenced in 2016 with the project completed in 2020 after around 2 years on site.



COMPLETION DATE: 01-12-2020

SMART DESIGN STUDIO

ALEXANDRIA, NSW







Smart Design Studio is a fantastic adaptive re-use project that incorporated numerous architectural and engineering challenges to create what is now a commercial office space for an architectural practice and an apartment. The project involved partial demolition, strengthening and re-use of a 1950's brick and sawtooth roof warehouse; and construction of a new three-storey office/apartment. The key structural challenges for this project were the parabolic brick vaults which formed the roof, the curved brickwork façade and the cable-stayed cantilever internal stairs.

COMPLETION DATE: 01-02-2020

PALLAS HOUSE

Located in the heart of the Double Bay, the new Pallas House is a landmark development that consists of internal and external refurbishment, including complex structural upgrades and extensions to the building. Originally built in the mid-20th century, the project embodies creative adaptive and re-use. The addition of two floors required an upgrade to the building's structural capacity using steelwork frames with a concrete steelwork composite floor system.

210 CLARENCE STREET, SYDNEY



Other characteristics include precast concrete façade panels, new curtain wall façade, formation of a new structural skeleton, strengthening of the existing concrete structure and the relocation of the stair and lift core.



COMPLETION DATE: 01-06-2021

45 MURRAY STREET, PYRMONT



A beautiful transformation of a 5 storey office building into an 8 storey boutique art hotel in Pyrmont. Originally constructed as a 3 storey masonry building in the 1930s, later altered in 1992 and 2007, the development complexity required innovative engineering in conjunction with advanced analysis techniques with limited records available. Project solutions included minimisation of spatial impact to the 90+ year old brick by strengthening the load path using thin jacketing and collarlike footing systems; new floors were designed using composite steel construction; extending the brick façade and designing a 4.5 metre glass façade to enclose the top floor.



COMPLETION DATE: 30-06-2021

BILGOLA BEACH HOUSE





Bilgola Beach house is a wonderful example of excellence in residential design, engineering, and construction. The project involved: excavation depths of 4m across two residential lots which were amalgamated into one property;

design of shoring for the excavation support; basement concrete slab and pile design to resist coastal erosion and wave loading; rammed earth and board-formed expressed concrete walls; exposed architectural steel framing, operable façade elements hanging off a 4m double cantilever; and hung floor plate.





COMPLETION DATE: 25-02-2019

57 OCEANO ST, COPACABANA NSW

57 Oceano St, is a new 2 storey residential property situated on a very steep block of land with views to Copacabana beach with a construction cost of \$2.2M. The entire structure is supported on 2x full height steel trusses on each side of the building with cantilevers of 7m from the last knee brace element and 12.5m from the last pile footing. The structure is supported on 10x concrete piles





COMPLETION DATE: 30-06-2021





MEDIUM BUILDING PROJECTS

1. CHRISTOPHER CASSANITI BRIDGE - ARUP

2. HERBARIUM - SCP CONSULTING

3. LITTLE NATIONAL HOTEL - TAYLOR THOMSON WHITTING

4. AFRICAN SAVANNAH PRECINCT - SDA STRUCTURES





CHRISTOPHER CASSANITI BRIDGE MACQUARIE PARK, SYDNEY







COMPLETION DATE: 04-06-2020

The Christopher Cassaniti Bridge is an organic, double helix bridge connecting Landcom's new residential development, and the Macquarie Park precinct, to the North Ryde metro station in Sydney. Through structural ingenuity, advanced parametric analysis, and sheer determination, the design and construction team delivered a stunning, multi-span, materially efficient bridge structure,in direct response toits site and functional desires. Its structural system, legibility, and boldness resonates, whilst its inherent open scale helps the community retain strong links to their surrounding ecosystems.

NATIONAL HERBARIUM OF NSW

MOUNT ANNAN

ASCP

COMPLETION DATE:

01-06-2021

The new National Herbarium of NSW is a unique project in the Australian Botanic Garden Mount Annan, characterised by distinctive rammed earth walls and a large "fly-roof". The long span structure of the "fly-roof" will support a large format photovoltaic array that will generate electricity for the facility, and the roof's surface will be used to harvest rainwater for irrigation. Rammed earth was used for the specimen vault walls leveraging its innate thermal mass to provide insulation and protection to the 1.4 million botanical specimens stored within, even in extreme events such as bushfire



LITTLE NATIONAL HOTEL

SYDNEY, NSW



Little National Hotel Sydney is a railway oversite development (OSD) above Wynyard Station's Clarence Street Entry Building. The hotel structure consists of an innovative and efficient steel transfer structure distributed over the bottom four stories of the OSD which are hidden within the hotel room walls and incorporated into the reception area to maximise useable hotel space, whilst resolving the complex Wynyard Station constraints below. The project presented challenges in transferring the load from the new structure onto the existing structure underneath.



COMPLETION DATE: 01-08-2020

TARONGA ZOO SAVANNAH PRECINCT

SYDNEY

The new African Savannah Precinct at Taronga Zoo, Sydney provides an immersive experience to visitors through exhibits and authentic habitats which are nestled in a range of viewing shelters, a fully upgraded visitor area and significant landscaping that replicates the 'African Savannah'. Structures across the site include state-of-the-art operational areas, new animal enclosures and innovative viewing opportunities.In the case of the carnivore exhibits, design of animal impact loading for containment structures were rationalised from first principles, to ensure a safe environment for the keepers and public throughout the precinct.





SD/

COMPLETION DATE: 30-06-2020





LARGE BUILDING PROJECTS

- 1. INNER SYDNEY HIGH SCHOOL NORTHROP
- 2. LOCOMOTIVE WORKSHOP ARCADIS
- 3. CENTRAL COURTYARD MACQUARIE UNI SCP CONSULTING
- 4. SUBSTATION NO.164 TAYLOR THOMSON WHITTING
- 5. CHAU CHAK WING MUSEUM NORTHROP
- 6. BARKER COLLEGE ROSEWOOD CENTRE SDA STRUCTURES
- 7. CROWN SYDNEY ROBERT BIRD GROUP

XAVIER KNIGHT

PROUDLY SUPPORTED BY

INNER SYDNEY HIGH SCHOOL SURRY HILLS, NSW



The Inner Sydney High School is a 14 story vertical school that maximises the efficiency of the existing site, catering for up to 1200 students from the local area. This project included an innovative tower building housing various specialist teaching spaces, and the fit out of three existing heritage buildings. Numerous structural challenges included a basement retention adjacent to sensitive heritage structures, large transfer structures over clear span sports facilities, vibration isolated sports courts on upper floors of the building and bespoke heritage detailing to maintain sensitive items.



COMPLETION DATE: 18-12-2020

LOCOMOTIVE WORKSHOP SOUTH EVELEIGH, SYDNEY





The locomotive workshop in South Everleigh was once the centre of Sydney's industrial past and is now home to innovation and technology. The true challenge of this project was in bringing this 124-year-old historically significant building into the 21st century, while still celebrating the rich history behind the heritage fabric. The interfaces between the new and heritage structures were cleverly designed in such a way that minimised both structural and ARCADIS visual impact to the historic elements. The building, along with all its machinery collection, is listed on the NSW State COMPLETION DATE: Heritage Register.

04-04-2021

1 CENTRAL COURTYARD MACQUARIE UNIVERSITY



One Central Courtyard (1CC) at Macquarie University, stands out as the largest building in the Central Courtyard Precinct. To accommodate a graduation hall, 1CC was uniquely engineered to achieve a 30m clear span at the lowest floor, through a concrete mega transfer structure which utilised two large up stand beams at the roof level. Each of the roof upstands supports two hanging columns. The building also features a 13.5m long concrete learning stair, skylights to introduce natural sunlight into the space and carefully crafted landscaping including a water feature to provide a relaxing environment.



SUB STATION NO. 164

SYDNEY NSW



Sub Station No. 164 is the revitalisation of two adjacent historic Sydney buildings into a distinctive office space, with a new seven-storeys culptural glass extension in the air, along with two additional basement floors below the existing footing levels. The design and construction phases revolved largely around the impact of the new structure on the existing heritage building fabric. Challenges include dissues around connecting the two buildings of different materials, and different levels, whilst ensuring the transferring load would not damage the structural integrity of the heritage building.



COMPLETION DATE: 01-02-2021

CHAU CHAK WING MUSEUM

SYDNEY, NSW





Northrop were engaged to develop construction structural documentation for Chau Chak Wing Museum on behalf of FDC Construction. The biggest challenge being the 14.2m cantilevered walls supporting a 33m single span transfer wall. These elements were further complicated by the requirement for high quality concrete finishes to the façade of the building. Northrop were also engaged to provide temporary works advice to support the walls extending over roots of heritage listed fig trees. The project was briefed for a 100-year design life, increasing the requirement for crack control and structural durability.



COMPLETION DATE: 30-03-2020

BARKER COLLEGE ROSEWOOD CENTRE HORNSBY, NSW



Rosewood Centre is a new sports and learning precinct with 5 indoor courts, multiple learning and wellness rooms and a large underground car-park for the expanding school. The 130m long, four-level concrete frame building, stabilises the 36m span steel truss sports court roof. The building is shrouded on three sides with a translucent fabric awning (one of Sydney's largest) cantilevering up to 6m in its folding geometric form. Over 500 roof solar panels aid sustainability, and the schools project goal is a 'celebration of sport for C every student, everyday'.

SD/ STRUCTURES

COMPLETION DATE: 01-12-2020

CROWN SYDNEY

SYDNEY BARANGAROO

The Sydney Crown Towers is Sydney's tallest building, standing at 275m, and is NSW's first 6star luxury hotel. Valued at over \$2 billion, this iconic building has transformed Sydney's skyline. Crown Sydney consists of 40 residential levels, 17 hotel levels, 4 podium levels and 4 levels of underground basement. Robert Bird Group provided Structural and Construction Engineering services across all phases of the development. Their creative engineers solved the many problems that this project presented, leaving a legacy of learning by pushing the boundaries of what is possible.



COMPLETION DATE: 28-12-2020







UNUSUAL BUILDING PROJECTS

1. GRANVILLE PARK STADIUM - NORTHROP

2. ED SQUARE PLAYGROUND - PARTRIDGE

3. THE GEOFF HENKE OLYMPIC WINTER TRAINING CENTRE

- TAYLOR THOMSON WHITTING

4. FLOATING DESIGNER STORE STAIRCASE - PARTRIDGE



GRANVILLE PARK STADIUM

GRANVILLE, NSW



Northrop were engaged across all engineering disciplines to deliver the unique Granville Park Stadium project. This newstate-of-the-art community sports pavilion is home toTwo Blues Rugby Union team, with seating for 750 spectators, and is the first mass-timber framed grandstand structure in Australia. Being a community project, it was important that costs were managed to within budget -a real challenge when working with anarchitecturally ambitious mass timber structure.



COMPLETION DATE: 30-06-2021

ED SQUARE PLAYGROUND

EDMONSON PARK





Ed Square Playground is a dynamic indoor play space in Western Sydney featuring three gumnut "pod" structures interconnected with climbing rope bridges and slides that are partially suspended from above... The engineering design presented a range of challenges, with meticulous detailing required to seamlessly integrate slides, ropes, platforms, bridges, and a network of suspension cables. Partridge provided engineering solutions that were aesthetically desirable, straight-forward to manufacture, and considered constructability requirements within the constraints of the existing building structure.



THE GEOFF HENKE OLYMPIC WINTER TRAINING CENTRE

The Geoff Henke Olympic Winter Training Centre is a world-class facility, and the first of its kind in the southern hemisphere. This freestanding 220 tonne steel structure reaches 35m at its highest point and hosts seven jump profiles suitable for various aerial disciplines. This unique project presented numerous design challenges, requiring collaborative input from stakeholders and end users, to ensure the facility replicated on-snow conditions that Olympians compete on. The subsequent ramp substrate is a custom folded engineered metal profile, that provides a corrosionresistant protective surface, withstanding wind loadings and any expansion and contraction created by the Queensland climate.



COMPLETION DATE: 01-04-2021

FLOATING DESIGN STORE STAIRCASE





155 KING ST, SYDNEY "THE TRUST BUILDING"

The sculptural floating stair is a wonderful example of excellence in steel design, engineering, and construction, while dealing with the constraints of an existing building and the demands of a live fitout project. The project involved design and documentation of a self-supporting, helical structural steel stair, which spanned two storeyshighand then separated into two independent flights at the upper transition. The stair was wrapped in lathed timber battens and finished with marble treads. This required significant strengthening of the existing 1914-era floors, and the introduction of tuned massed dampers, to achieve the required stiffness and vibration limits under footfall.

PARTRIDGE

COMPLETION DATE: 20-05-2021





SUSTAINABLE STRUCTURES PROJECTS

1. HONEYSUCKLE CITY CAMPUS - NORTHROP



PROUDLY SUPPORTED BY



HONEYSUCKLE CITY CAMPUS, UNIVERSITY OF NEWCASTLE

To create the right environment for their School of Creative Industries and Innovation Hub, the University of Newcastle wanted a building that provided open floor plates and transparency. Northrop were engaged for the structural design of this project, and used recent experience with mass timber buildings to deliver this project alongside EJE Architecture, Hansen Yuncken, Binderholzand Savcon. The mass timber structure responded to the University of Newcastle's sustainability aspirations, as wellas to providing an elegant, exposed structure.





COMPLETION DATE: 30-06-2021





FEMALE ENGINEER OF THE YEAR

1. MARIE O'LOONEY - SDA STRUCTURES

2. LAUREN GAUDION - NORTHROP

3. EMILY CHUNG - TAYLOR THOMSON WHITTING

PROUDLY SUPPORTED BY



MARIE O'LOONEY



Marie O'Looney is an Associate Director at SDA with a mission to inspire others. After graduating from The National University of Ireland in 2002, she worked as a site engineer before moving to consultancy. Following a stint of volunteer work in Haiti, she emigrated to Sydney and joined SDAStructures, where she has significantly contributed to the firm's business development. With responsibility for delivering many award-winning projects her passion for people means she has established strong relationships with builders, architects, colleagues, and clients. She promotes diversity and inclusion through the SDA social club, hosting women in engineering event



LAUREN GAUDION

Lauren Gaudion began her career with Northrop in 2016 as an undergraduate and since then has managed several notable projects. She is aiming to become Chartered next year and is mid-way through her application. She has contributed much to Northrop through her involvement in their Service Excellence Bucket, Climate Action Committee and Undergraduate Recruitment for 2021. Lauren also serves on theYoung Engineers Australia's Sydney Division Committee and has held various positions. Lauren's industry involvement through illustrates her high level of maturity and dedication to the engineering industry





EMILY CHUNG



Emily Chung is a Senior Structural Engineer at TTW and currently designs in the Computational Design team as the key structural lead. Emily has pioneered a Community Social Impact Group at TTW and is leading staff at TTW to participate in rewarding technical pro-bono work and non-technical volunteering initiatives. Emily's experience across numerous internal groups, with diversity of significant and distinctive projects, including knowledge in unique areas like timber and parametric design, makes her a point of contact for all engineers

EMERGING ENGINEER OF THE YEAR

1. STEVEN BIRCH - STANTEC

2. MITCHELL RYAN - NORTHROP

PROUDLY SUPPORTED BY

STEVEN BIRCH

After Steven graduated from the University of Sydney with First Class Honours he started his career at Stantec in2018, where he quickly established himself as a key member of the Structural Team and assumed significant responsibility in various projects. Recently, Steven has progressed to lead design engineer roles and has submitted his chartership. Steven was a recipient of the New Colombo Plan Scholarship, which, in collaboration with Engineers Without Borders, provided him the opportunity to travel to Samoa to develop his engineering design skills within a developing context. Steven mentors younger engineers and is involved in promoting STEM at his childhood primary school.

MITCHELL RYAN

Mitchell began as an undergraduate at Northrop in 2015 and has become an integral member of their structural team. He strived to produce the most economical designs, spending hours learning and developing tools to minimise wastage and project costs. He loves to solve complex technical problems, exploring solutions with builders to innovate and develop practical and efficient designs that achieve great results for both the project team and endclients. He has lead teams of engineers and drafters, in a wide variety of projects and materials, whether it's residential, commercial, industrial, concrete, or steel. Mitchell is always eager to push his team to grow, develop and produce better engineering design

THANK YOU TO OUR CATEGORY SPONSORS

