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Building Services

Capability Statement

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bec.studio

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Project:
Architect:
Significance:

Verde Apartments, Cameron Street
VCP Developments
Building Services | Structural



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We challenge mediocrity and strive towards Client relationships and project team associations where a collective approach is championed in recognition of enhanced outcomes.

”

John Tuxworth

**Managing Director
BEC**

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Project: Hiron Street, St Lucia
Architect: Shane Thompson Architects
Significance: Building Services | Structural | ESD

Our Company

Built Environment Collective is a multi-discipline award winning Australian-based engineering design & project management business, offering enhanced client outcomes via integrated solutions & a holistic approach to design & construction. Our team is driven to produce the best outcome for everyone involved in a project, being rewarded for our work is an added bonus.

Founded on the 20-year experience of Managing Director, John Tuxworth, the company provides a unique value-adding contribution across a range of market sectors and project types. From the main operation in Brisbane, we have delivered projects as far as Angola, on the west coast of Africa, to Tonga in the Pacific.

Built Environment Collective is proud to be ISO9001:2015 certified to provide structural, civil, building services & ESD engineering consultancy, as well as project management services in Australia and Internationally.



Our People

We maintain a rigorous approach to Continuing Professional Development (CPD). In addition of the commitment required by the relevant institutes and councils, CPD targets are mandated as part of each staff member's employment contract.

The Managing Director, John Tuxworth, contributes across all service offerings. John's tertiary education started at QUT's school of Civil Engineering. Following this John spent several years abroad working for Maunsell (Aecom) in Indonesia, Waterman Partnership in London, and Michael Punch and Partners in Dublin.

John's interest in becoming a multi-discipline building professional saw him undertake architectural studies at the University of Westminster in London, and he has also undertaken MBA studies through Latrobe University. John is also one of the few structural/civil specialists to be accredited as a Green Star Professional.

Project: **Somerset Civic Centre, Esk**
Client: **Somerset Regional Council**
Architect: **Thomson Adsett /Studio 39 Architects**
Significance: **Building Services | Structural | Civil**







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Project:
Architect:
Significance:

Stone & Wood Brewery, Bridge Street
Luke Chalmers Architects
Building Services | Structural



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Our Building Services Capabilities

Our team of experienced professionals employ advanced analytical tools to drive highly functional & fit-for-purpose Building Services design.

We facilitate the design, documentation, & delivery of Hydraulic, Mechanical, Electrical, and Wet & Dry Fire services to meet a Client's brief and eliminate unnecessary costs, whilst still achieving compliance with Australian and/or international building codes. A strong focus on collaboration with other design team members benefits our Clients by integrating a larger pool of ideas and experience.

Our building services contribution responds positively to the local environment with a focus on reduced maintenance and whole-of-life operating costs. We offer a multi-disciplined experience to assist with the reduction of materials and utilities requirements, and the maximisation of natural light, shading, and ventilation where appropriate.

In addition, we offer experience with environmentally sustainable systems such as solar heating, battery storage, rainwater harvesting, and swales. Our innovative approach to buildability is based on construction techniques which lend themselves to safety and efficiency.

We work hard to ensure that Client objectives and outcomes are clearly defined from the outset. Our hands-on approach to project management assists to drive each project towards delivery, with an emphasis on quality, cost and program.

Our Building Services Expertise

We have significant experience in the design & documentation of developments both in Australia & abroad, across the company's core disciplines of Structures, Civil infrastructure, ESD, & Building Services.

Our services team work across Hydraulic, Mechanical, and Electric & Wet and Dry Fire. From concept and preliminary sizing, all the way through to detailed design, specification, construction, and ongoing maintenance & upgrades.

Engineering Design

- > **Structural Design**
- > **Civil Design**
- > **ESD (Ecologically Sustainable Development) & Energy efficiency**
- > **Building Services**
 - > **Hydraulic**
 - > Plumbing & drainage
 - > Trade wastes
 - > **Mechanical**
 - > Heating, Ventilation & Air Conditioning (HVAC)
 - > **Electrical**
 - > Internal & External lighting
 - > Small power lift - MSB & PB
 - > Solar systems
 - > Battery storage
 - > **Wet & Dry Fire**
 - > Sprinklers hydrants & hose reels
 - > Boosters, pumps & storage
 - > Plant room & reservoir
 - > Electrical warning & detection systems

01

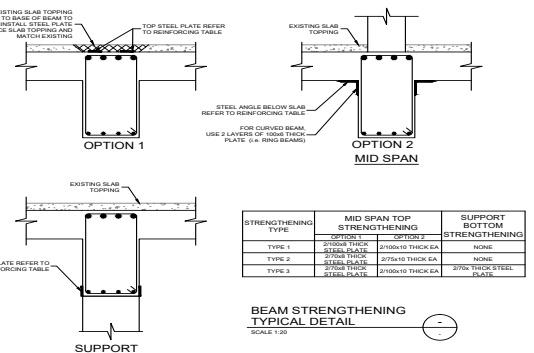
PROJECT: Somerset Civic Centre, Esk
CLIENT: Somerset Regional Council
ARCHITECT: Thomson Adsett/Studio 39 Architects
SIGNIFICANCE: Building Services | Structural Design | Civil

The BEC Team was engaged to provide structural, civil, and building services engineering for a new Civic Centre in Esk. Somerset Regional Council embarked on the project after the original heritage-listed facility was decimated by fire. Our brief was to enable the space to be as flexible as possible in order to facilitate a variety of uses, including celebratory dinners, theatrical performances, art exhibitions, and meetings.

The project was awarded the Australian Institute of Architects Project-of-the-Year for the Darling Downs region, was shortlisted for the BlueScope Steel State Architecture Award, and was recognised as a state finalist in the 2013 Engineering Excellence Awards.

The building form reflects the rural nature of the area, being a modern interpretation of an agricultural structure. Industrial structural steel work is employed to provide the large spans, with particular attention paid to connection detailing in support of architectural intent.





02

PROJECT: Africa Hall - Rehabilitation & Heritage Preservation

CLIENT: United Nations

ARCHITECT: Conrad Gargett

SIGNIFICANCE: Building Services | International | Heritage | Forensic | Structural Remediation

Africa Hall is one of Ethiopia's historical landmarks. The building serves as the headquarters of the United Nations Economic Commission for Africa (UNECA). Designed by architect Arturo Mezzedimi, the building was constructed in the 1960s and is recognised as one of the most significant buildings throughout all African Nations. This heritage building housed the first summit of the African Union.

Tender for detailed design of the US \$65 million-dollar remediation and heritage preservation was won by the international team compiled by BEC. Our multi-discipline contribution included forensic investigation, and full structural, civil, and hydraulic design and documentation as required for the entire redevelopment, including ground floor retail & commercial spaces. Our services offering was delivered in full in 3D via Revit, allowing enhanced clash detection & eliminating co-ordination issues before they occurred.



03

PROJECT:

Verde Apartments, Cameron Street

ARCHITECT:

VCP Developments

SIGNIFICANCE:

Building Services | Structural

The BEC Team were initially engaged to come on board with this 12-storey project in order to provide civil engineering documentation in support of a Code Assessable Development Application. Our contribution to the 80-unit, South Brisbane project covered the site based stormwater management plan and engineering services report which included sewerage, potable water, roadworks, earthworks, telecommunications, electricity and gas.

Our brief was then expanded to include structural, civil and hydraulic design and documentation. This including additional hydraulic design for a proposed greenwall and associated greywater treatment system to service it. We were again engaged to provide QUU (Queensland Urban Utilities) Endorsed Consultancy services for major works on the water reticulation; then to superintendent the 72-week construction program.





04

PROJECT:

Goodfellows Road, Murrumba Downs

CLIENT:

Buckley Road Rescue Pty Ltd

SIGNIFICANCE:

Building Services | Structural

BEC was commissioned to provide structural, civil and building services consultancy for this townhouse development in Murrumba Downs. The Goodfellows Rd project initially included significant road and civil works, with the formation of new Council asset roadway, kerb & channel, as well as five residential lots with thirty-five townhouses.

The project was comprised of three development stages. The first was a boundary realignment; the second included the subdivision of the site into 3 lots and a new road reserve which extended an existing roadway through the site. The final stage involved the further subdivision of the site to make a total of 5 lots.

In response to Council's increased density incentives, an alternative three storey design was completed, featuring 2 floors of townhouses, and a third level of penthouse style apartments on top. This change necessitated additional hydraulic, mechanical, & electrical engineering, & as Council incentives were being offered on a first come, first served basis, time was of the essence. Having intimate prior knowledge of the project, and a competent multi-discipline team, BEC was able to rapidly turnaround the building services scope to ensure compliance - resulting in a very happy Client.



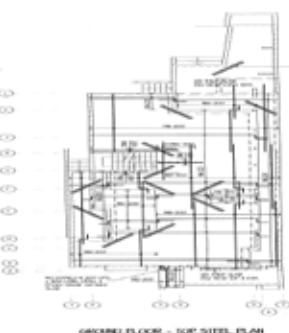
05

PROJECT: Hiron Street, St Lucia
ARCHITECT: Shane Thompson Architects
SIGNIFICANCE: Building Services | Structural | ESD

BEC was originally engaged on the Hiron St project to provide Structural design and documentation to widen the basement. Following completion of our initial engagement on the project, we were brought in again to cover a significantly widened scope of services; now encompassing the proposed demolition and high-end alterations & additions to the riverfront residence.

Our new brief covered structural, civil, hydraulic, mechanical, electrical, and section J energy efficiency services. The project intent was to produce an exceptionally high-quality finish and acknowledge the sensitivities of the site given its riverfront position, and that the basement extension was toward the river.

The structural additions included a new basement opening, a dumb waiter, eastern boundary arbour structure, and an impressive entrance including a new pergola, stairway, planter and fold down roof. Further additions included a basement bathroom and kitchenette (with ice maker fridge), relocation of ground floor kitchen and all associated gas, hot/cold water and sanitary services, a new level 1 bathroom and a review of gas hot water system to ensure accommodation of all new services. We also offered optional ESD scope which included the addition of a photovoltaic system and solar storage batteries to help mitigate the projected increase in energy costs.





06

PROJECT: Burwood Nursing Home
ARCHITECT: Jackson Teece
SIGNIFICANCE: Building Services | Structural | Stormwater

BEC was proud to work alongside Jackson Teece on a 3-storey plus basement building, which will facilitate a high-end aged care facility for inner Sydney.

Our commission included preliminary structural, building services, a Stormwater Drainage Concept Plan (SWDCP), and mechanical consultancy, including advice on heating, ventilation and air conditioning (HVAC).

Our team had to work within rigid height restrictions and coding, specifically in regards to air conditioners placed on top of the structure. We proposed a cutting-edge, gas-powered air-conditioning system, which would save the client energy costs over time, improve the sustainability of the building, and could be moved off the top of the building to ensure compliance. These kinds of systems are only just being introduced to Australia, and we're aware of only one supplier in the country, Yanmar.



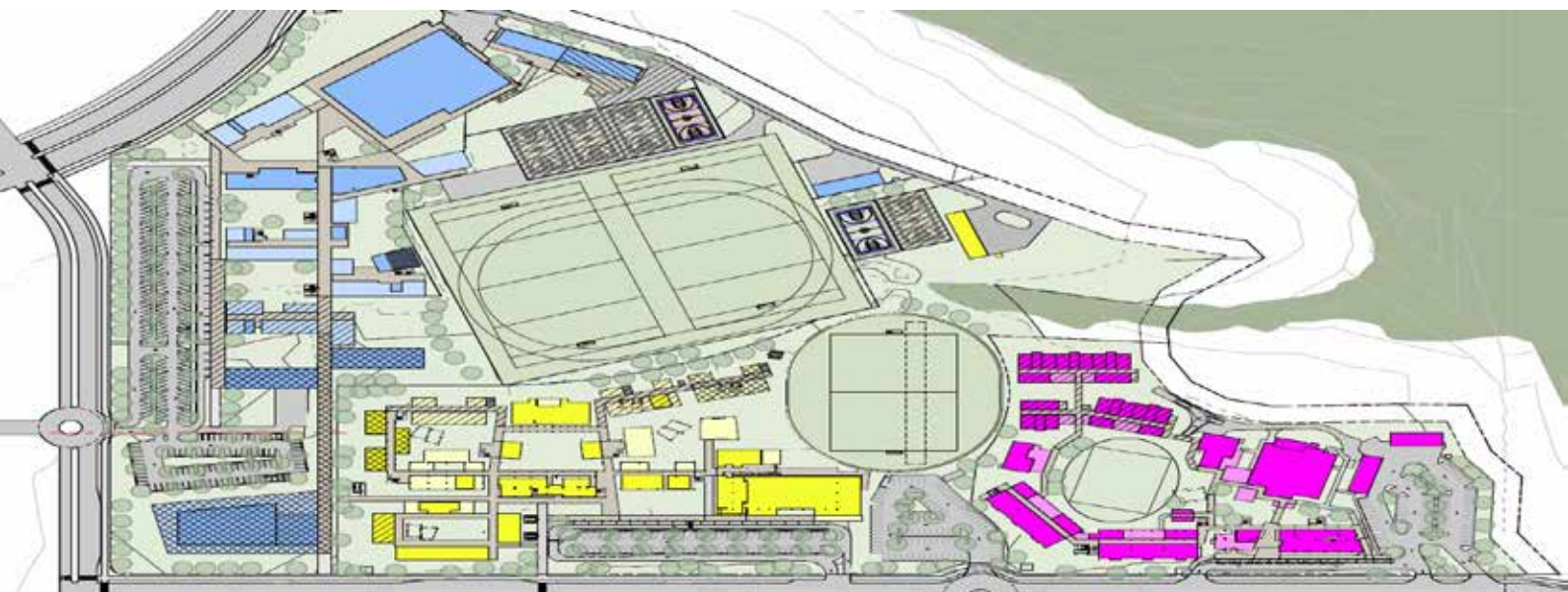


07

PROJECT: Palmview Schools
ARCHITECT: James Cubitt Architects
SIGNIFICANCE: Building Services | ESD | Structural | Civil

BEC was pleased to work with James Cubitt Architects (JCA) on the Palmview Schools project. The circa \$70M DoE commission was for the development of three new schools on a greenfield site. We delivered a coordinated multi-discipline service offering including structural, civil, hydraulic (including wet fire), and Section J energy efficiency. Our team was involved from the master planning phase, through concept, schematic, and detailed design for the new state school, special school and state secondary school (with a combined functional space of 18,000m²).

The scale and complexity of the project, combined with its proximity to protected wetlands proved to make the time-sensitive project a challenge. We worked closely with the Client, JCA, Cadence and Place Design Group's landscape team, to ensure an optimal result. A concerted multi-discipline approach facilitated a smooth delivery, & a project we're proud of.





Project: **Ellise Apartments, West End**
Architect: **VCP Developments**
Significance: **Building Services | Structural | Stormwater**



Project: **Burwood Nursing Home**
Architect: **Jackson Teece**
Significance: **Building Services | Structural | ESD | Civil**

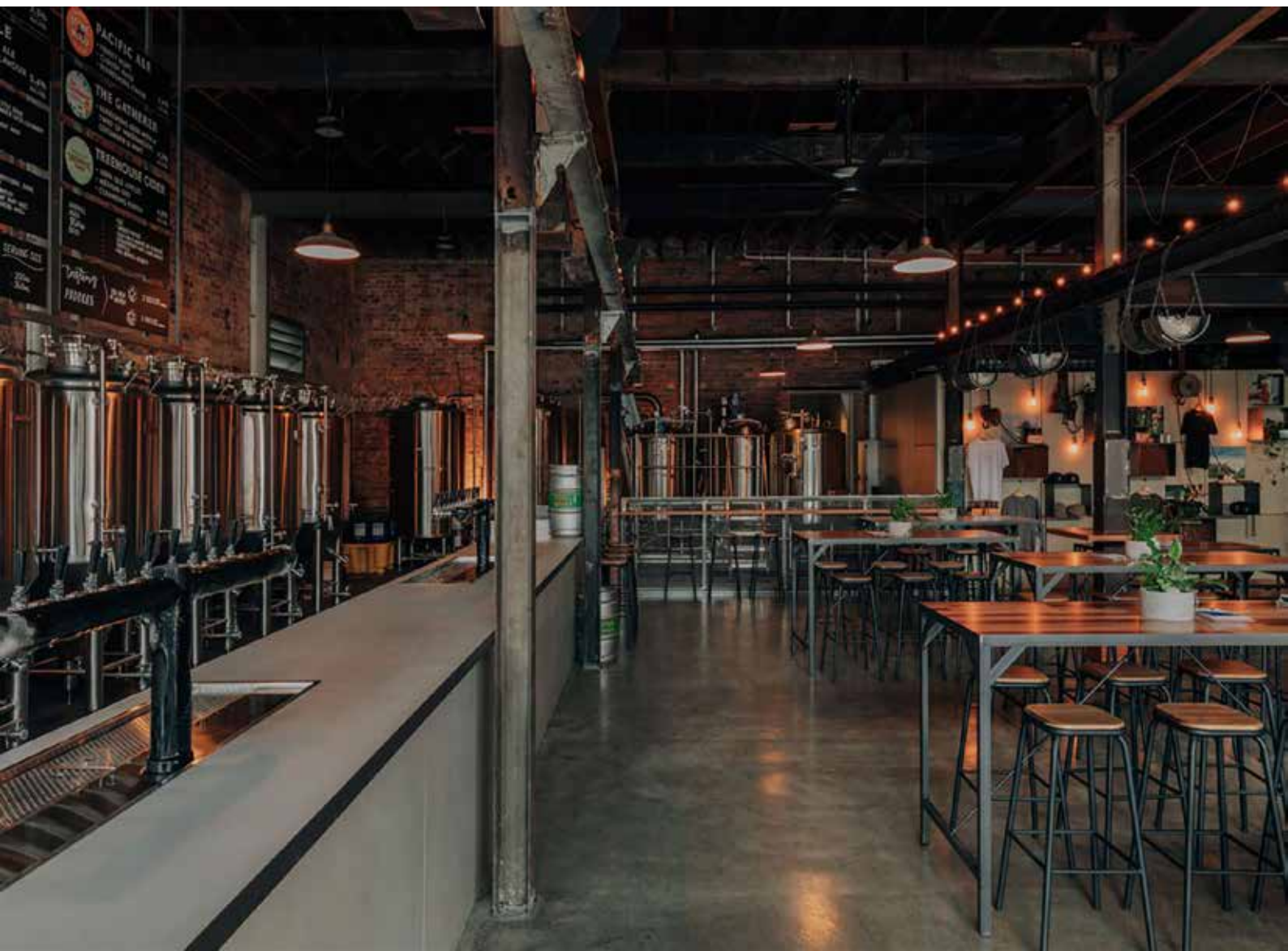
08

PROJECT: Stone & Wood Brewery, Bridge Street
ARCHITECT: Luke Chalmers Architects
SIGNIFICANCE: Building Services | Structural

BEC was called in to provide structural remediation and strengthening advice on a dated building on Bridge street - destined to become the new Fortitude Valley Stone & Wood Brewery.

Our building services scope of works included a full hydraulic dilapidation investigation, complete with advice on areas of non-compliance, and associated remediation. We then delivered the plumbing and drainage scope of works for fit out.

At the time of our initial inspection, the suspended ground floor slab had essentially reached the end of its design life. We used semi-permanent structural steel bracing to ensure the aged suspended slab was up to its new task. Our offering also included core holes and ground penetrating radar scan of the lower ground slab, and annual post-construction phase inspections of suspended ground floor slab.





09

PROJECT:
SIGNIFICANCE:

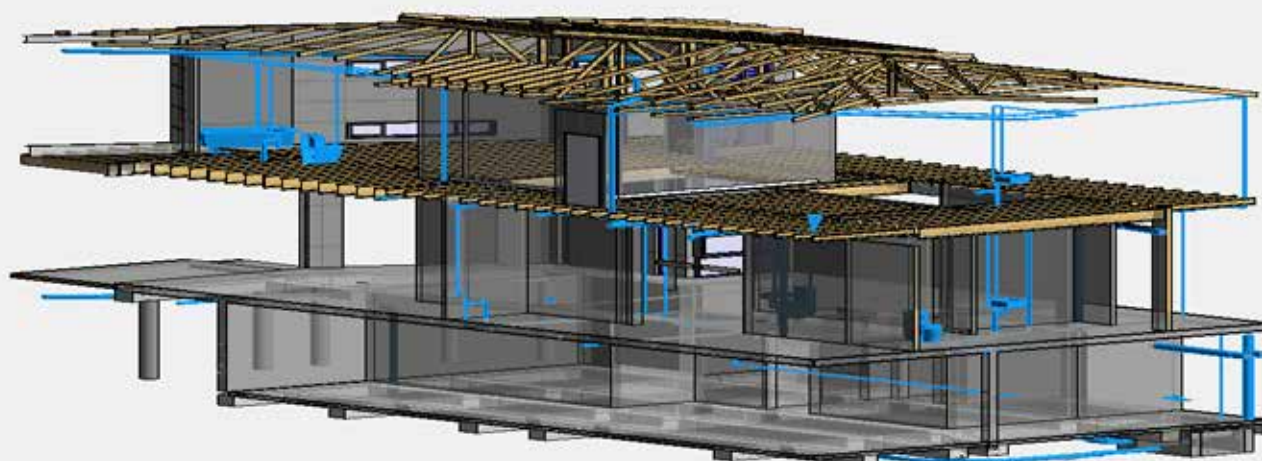
Boree St, Burpengary
Building Services | Structural | ESD

BEC's Boree St project scope included structural, civil, hydraulic engineering services as well as ESD and solar system specification for the new 3-storey residence.

Primarily a blockwork/concrete structure, the design includes a lap pool wrapping around the north and west walls and originally incorporated a steel frame structure proposed to support north and south facing green roofs. Our scope included structural design for the entire building, inclusive of coordination between dwelling and pool such that the dwelling/pool interface includes an underwater basement pool window.

Our ESD contribution covered NatHERS modelling for compliance, solar PV system consultancy, and electricity usage analysis among other recommendations. The Solar PV system feeds into multiple Tesla Powerwall II systems to ensure the battery power storage is sufficient to continue to power the entire house during heavy storm conditions with no grid power.

A boutique, coordinated approach to hydraulic plumbing and drainage facilitated improved architectural outcomes, as illustrated below.





10

PROJECT: Ellise Apartments, West End
ARCHITECT: VCP Developments
SIGNIFICANCE: Building Services | Structural | ESD | Civil

The Elise Apartments development in West End is a beautiful 7-storey apartment complex with 42 architecturally inspired apartments, a swimming pool, and 2 basement levels.

In addition to our structural, civil & ESD scopes, BEC was commissioned to provide building services design & documentation.

Stormwater was cleverly diverted and put through a Treatment Train to ensure regulatory water quality compliance. Scenario and peak flow calculations took into account site characteristics, topography and drainage. Other considerations included potable water, sewerage, road and earthworks and telecommunications capacities and requirements.





11

PROJECT:

Department of Housing and
Homelessness Precinct

ARCHITECT:

People Oriented Design (POD)

SIGNIFICANCE:

Building Services | Structural | Civil

We are proud to have worked with Cairns-based architects, People Oriented Design (POD), on the Department of Housing and Homelessness' Precinct Revitalisation Program. The project encompassed multiple sites across Queensland (including Hervey Bay, Bundaberg & Rockhampton)– with the overall goal of improving the livability, security, sustainability, and durability of public housing buildings.

BEC's multi-disciplined commission included structural, civil, and building services engineering in support of upgrades & refurbishments to the existing façade, landscape, and structures. Façade treatments were implemented in support of enhanced privacy and amenity was improved via landscape solutions. Roofs were also upgraded across the sites.

We are happy to play a part in improving the quality of life for tenants by providing innovative solutions to contemporary public housing needs.



Our Values

We challenge mediocrity & strive towards Client relationships & project team associations where a collective approach is championed in recognition of enhanced outcomes.

We are acutely aware of the adverse impact that current development paradigms have on the Triple Bottom Line sustainability.

We believe in professionals adopting a multi-disciplinary perspective in delivering projects.

Our Vision

To be the first choice of Clients who value quality, & to be recognised as adding-value [as opposed to being just another commodity service] - by providing creative solutions based on diversified skill and experience.

To lead positive triple-bottom-line change in the construction industry.

To found our business success on a passionate approach towards Continual Professional Development targets in excess of the commitment required by the relevant institutes and councils.



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Melbourne | Sydney | Brisbane | Gold Coast | Cairns | Perth | Port Moresby

