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Company Profile 9th Edition www:bec.studio

Sydney | Canberra | Perth | Brisbane | Cairns | Shenzhen | Addis Ababa

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

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John Tuxworth Executive Director

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Project:Somerset Civic Centre, EskArchitect:Thomson AdsettContribution:All engineering disciplines[AIA Regional Building of the Year, 2013]

Our Company

Built Environment Collective is an award-winning Australian-based multi-national design & project management consultancy, offering enhanced Client outcomes via integrated solutions & a holistic approach to project outcomes.

BEC ranks amongst the upper echelon of Australian engineering consultancies:

Size: top 2.5%



Underpinned by the 27-year international experience of Executive Director, John Tuxworth, the company provides a unique value-adding contribution across a range of market sectors & project types.

Built Environment Collective is a Proprietary Limited company (Pty Ltd) in Australia, with Limited Liability Companies (LLC's) registered in the USA, and Shenzhen, China.

Following a merger with Geoff Ninnes Fong and Partners (GNFP) in 2021, our combined practice benefits from **over 50-years of multi-discipline project delivery**, & is the leading aquatics engineering consultancy in Australia

We are proud to be ISO9001:2015 certified to provide Structural, Civil, Building Services & ESD & Project Management consultancy services, in Australia & internationally.





BEC is comprised of diligent, passionate professionals, who utilise their expertise to facilitate optimal Client outcomes.

We are passionate about life-long learning. BEC maintains a rigorous approach to Continuing Professional Development (CPD) - in excess of the commitment required by relevant professional institutions. CPD targets are mandated as part of each staff member's employment contract.

The **Executive Director, John Tuxworth**, is a cross discipline construction industry professional with qualifications in engineering, architecture, management and project management.

Director, **David Halpin, and is the General Manager** of BEC. He is a registered architect and a member of the Australian Institute of Project Management (AIPM). David draws on his 32-years of design & management experience to lead our multi-discipline offering.

Director, Rhys Kilpatrick, has been with BEC since inception, and manages our Sydney office.

Director, Brad Head, leads our project management team and our Canberra office.

Statement of Purpose:

To work in partnership with our Clients & the best architects, planners, manufacturers, developers, & contractors, to deliver unsurpassed project outcomes across the globe.

To support inspiring architectural resolution, &/or challenging scale & complexity of work.

To facilitate creative & supportive work environments for our team members.

To invest for the benefit of our business & shareholders.

ABCs of BEC:





Architectural Big Complex

The ABCs of BEC is inspired by what drives us. We aim to work on projects with 2 out of these 3 aspects, using our multi-disciplinary capability & inhouse coordination to support enhanced architectural & project outcomes. From our head office in Brisbane, BEC has delivered projects from the USA across to Angola on the west coast of Africa.



Built Environment Collective LLC

"We Still Call Australia Home"



Built Environment Shenzhen Co Ltd

> Built Environment Collective Pty Ltd

Our Capabilities

Our Team of experienced professionals employ advanced analytical tools to deliver highly functional, fit-for-purpose & sustainable developments.

We bring our international expertise to each project, with Australian clients further benefiting from our local ownership structure. Our cross-discipline approach & internal coordination absorbs administrative burden and reduces construction cost/program risks.

We facilitate the delivery of buildings, structures, and civil works to meet a Client's detailed specifications and eliminate unnecessary costs, whilst still achieving compliance with Australian and international building codes. A strong focus on collaboration with other design and construction team members benefits our clients by integrating a larger pool of ideas and experience.

Our contribution responds positively to the local environment with a focus on reduced maintenance and operating costs. We offer a multi-disciplined delivery to assist with the reduction of materials and utilities requirements, and the maximisation of natural light and ventilation.

In addition, we offer experience with environmentally sustainable systems such as solar heating, 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.

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Project: Contribution:

Verde Apartments Structural | Civil | Building Services | ESD | Project Management

6

Our Expertise

We have significant experience in the management, design, documentation, and delivery of projects both in Australia & abroad, across BEC's core disciplines of project management, structures, civil infrastructure, building services, ESD, & aquatics.

Structural Design

- > Multi-storey
- > Architectural Homes
- > Commercial, Education, Municipal
- > Industrial, Heavy Industry
- > Specialist Concrete
- > Facade
- > Forensic
- > Water Retaining Structures

Building Services

- > Hydraulic (Plumbing & Drainage)
- > Wet & Dry Fire
- > Mechanical
- > Electrical

Civil Infrastructure

- > Stormwater Management
- > Engineering Services
- > Subdivisions
- > Roads
- > Flood Studies
- > Traffic Engineering
- > Queensland Urban Utilities Endorsed Consultant

ESD

- > Green Star Certified Professionals
- > Passive Solar Design
- > Thermal Modelling
- > Building Product Advice
- > Dematerialisation
- Nationwide House Energy Rating Scheme (NatHERS) Modelling

Aquatics

- > Forensic
- > Water Treatment
- > Concepts & Costing
- > Pool & Building Structures
- > Finishes
- > Specifications

Project Management

- > Design Management
- > Contract Administration
- > Superintendency
- > Programme & Disaster Management
- > Feasibility & Project Planning

Industry Recognition for BEC:

WINNER	 2017 CIA Award for Excellence in Concrete: Residential Buildings Category, QLD
STATE FINALIST	- 2016 Engineering Excellence Awards: Structures Category & Small Business Category
NOMINEE	- 2015 Structural Awards: Heritage Category & Small Practice Category
STATE FINALIST	- 2013 Engineering Excellence Awards: Buildings & Structures
STATE FINALIST	- 2012 Engineering Excellence Awards: Buildings & Structures Category, and Environment Category

64	PROJECT:	Africa Hall - Rehabilitation & Heritage
		Preservation
UI	CLIENT: ARCHITECT: SIGNIFICANCE:	United Nations Architectus Conrad Gargett International Structural Civil Hydraulic MEP

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 multidiscipline 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.





PROJECT: ARCHITECT: SIGNIFICANCE:

PROJECT:QUT Library, Kelvin Grove**ARCHITECT:**James Cubitt Architects**SIGNIFICANCE:**Education | Multi-storey | Multi-discipline

Our input on this project contributed to it being awarded a 2012 AIA Brisbane Regional Commendation.

The BEC Team supported alterations and additions to libraries at both Gardens Point and Kelvin Grove campuses. There were various aspects to the engagement including a new multi-storey addition to the Kelvin Grove library, a new façade, and a relocation of compactus.

Refurbishment of the Kelvin Grove library provided great opportunities for ESD initiatives and functionality. A variety of facade treatments and ventilation strategies were modelled to minimise energy usage and carbon consumption. A 5-floor extension to the library is now a revised entry statement, and provision of a new grand stair has enabled complete reconfiguration of the internal spaces.









 PROJECT:
 Darwin Wave Pool

 CLIENT:
 Northern Territory Government / ABNAmro

 ARCHITECT:
 Hassell

 SIGNIFICANCE:
 Aquatic | Structural | Mechanical | Hydraulic

The Boogie Board Wave Pool was built as part of the Darwin Waterfront Project for the Northern Territory Government. This is the largest wave pool in Australia, and was one of only six wave pools in the world at the time of design.

Our team of engineers were responsible for the structure, wave plant, pool filtration, mechanical and hydraulic services.

This complex undertaking consisted of recurring 1.2m high boogie board waves produced by pnuematic systems designed by Murphy Waves.



04

PROJECT: ARCHITECT: SIGNIFICANCE:

Belamar Towers, Angola Pinzon Multi-storey | Structural | Hydraulic

An exciting high rise in a developing country. This project epitomises the BEC team's ability to complete a multi-discipline, cross-continent, cross-language product.

Our team provided structural and hydraulic engineering services for these two 25-storey apartment towers located in Talatona, an emerging suburb 15km south from the capital, Luanda. The development comprises 468 apartments per tower, approximately 600 parking spaces, communal areas throughout several podium levels, including two swimming pools, a spa, and spa salons.

Floors were designed as post-tensioned flat plates, achieving longer spans with less weight, smaller columns and increased NLA. The post-tensioning strand layout was coordinated with integral horizontal services runs within the depth of the slab in order to satisfy the Client's requirement for reduced floor to floor heights.

N 5	PROJECT:	Palmview Schools: Primary, Secondary & Special Ed
	CLIENT:	Department of Education
	ARCHITECT:	James Cubitt Architects
	SIGNIFICANCE:	Structural Civil Hydraulic ESD

Built Environment Collective were pleased to work with James Cubitt Architects (JCA) on the Palmview Schools project. The 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 are proud of.





PROJECT:
ARCHITECT:
SIGNIFICANCE:Paga Hill Apartments
Glen Peterson Architect
Structural | Civil | International

Paga Hill is a suburb of Port Moresby, the capital of Papua New Guinea. BEC were appointed in January 2012 to provide full structural and civil consultancy for this residential project, including construction phase services out of our PNG office. The project consists of eight boutique style apartments with commanding views out to the Coral Sea.

Challenges in realising a development on this site included:

- > Steep slopes and high retaining walls
- Accommodating tributary loads from a significant up hill development just meters away from basement excavations
- > Earthquake forces
- The distance of sewerage and stormwater legal point of discharge away from the site
- > Logistics and construction materials supply chain
- > Labour efficiencies

PROJECT: ARCHITECT: SIGNIFICANO University of Queensland Clinical School S3

SIGNIFICANCE: Structural | Civil | Hydraulic

BEC was commissioned to provide structural, civil and hydraulic consulting services for the new UQ Rural Clinical School at Bundaberg.

The facility will be utilised by both the University of Queensland and the hospital for training new health professionals.

The building sits elevated above the modelled Q100 flood level, with car parking and building services located in the full-height under croft. The building structure is comprised of a suspended reinforced concrete floor and load-bearing tilt-up wall elements.

Whilst not a formal project requirement of the Council, the civil design incorporates in-ground rainwater detention following recommended best practice. Hot water is supplied from combined instantaneous and solar thermal systems. Reclaimed water has been adopted for toilet flushing.





08

PROJECT: ARCHITECT:

358 Wickham St, Brisbane Buchan SIGNIFICANCE: Multi-storey | ESD

This project consists of a 15-storey commercial (approx. 24,000m² GFA) located at a prominent position on Wickham St. The Client has identified a premium return on investment will be obtained by achieving Green Star recognition and a high NABERS target.

BEC was appointed as ESD Consultants in 2011 for planning, documentation and construction phases of the project.

Our investigation of sustainable opportunities always begins with passive design. This passive-first approach combined with our cross-discipline engineering capabilities is redefining the expectations placed on engineering consultants in Australia.

PROJECT: ARCHITECT: SIGNIFICANCE:

Walker Avenue Joe Adsett Architects Structural | Hydraulic

This project consisted of a new addition to an existing low set brick house to transform it into a 5-bedroom home spread over three floors. The design features significant architectural off-form concrete elements that required extra care and consideration for documentation and coordination of the work. The majority of the building reflects a more high-end commercial type structural system with suspended concrete floor and block/concrete supporting walls.

The house is located atop an escarpment and is subject to prevailing south easterly sea breezes and it was therefore necessary to provide a proficient steel frame system to brace the top structure. The foundations for the new house were required to work around and place no adverse impact on the existing retaining walls that border the site.

Hydraulic concepts facilitated the seamless coordination of structure and plumbing enabling drainage pipes to be hidden within the columns.







 PROJECT:
 Restoration of Essential Public Assets

 DRFA
 DRFA

 CLIENT:
 Multiple QLD, NSW & VIC Councils, QRA, TfNSW

 SIGNIFICANCE:
 Programme & Disaster Management | Civil

BEC provides a range of specialist Project Management and funding support services to the Queensland Reconstruction Authority (QRA) across several years, and assists with multibillion dollar restoration of civil infrastructure assets damaged due to disaster events since Cyclones Tasha and Anthony in 2010/11.

BEC Managing Director, John Tuxworth, initially undertook Program Management for Valuefor-Money assessment of National Disaster Relief and Recovery Arrangements claims.

Our contribution has subsequently been extended to include:

- > Program Management for \$200 million grant funded reconstruction in Western Queensland
- > Foundation of VfM assessment frame-work for the \$80 million 2013 joint State and Federal Government Betterment fund
- > Establishment of a task-focused DTMR assessment team in 2013
- > Representation at District Disaster (and Local Disaster) Management Groups for Cyclone Marcia in 2015
- > Continued support for Local Councils in relation to flood, fire & wind disaster events

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		PROJECT:	United Petroleum, Windaroo
		ARCHITECT:	Mode Design
		SIGNIFICANCE:	Fuel Stations Civil Building Services

BEC was commissioned to provide civil infrastructure and hydraulic services for this new petrol station.

Civil works included road widening to Beenleigh-Beaudesert and Bannockburn Roads, redirection of road reserve drainage culverts in support of Operational Works Approvals. Control of stormwater quality and quantity has been achieved via bioretention basins.

Hydraulic services design addressed fire, rainwater, and commercial tenancy requirements including trade waste.





CLIENT: ARCHITECT: RELEVANCE: Bangkok Sustainable Masterplan Univentures Buchan ESD

The BEC team was commissioned to provide ESD services in support of a huge 17-hectare high-density, mixed-use development concept in Suan Lum in the heart of Bangkok; master-planned by The Buchan Group.

The BEC team looked to push ourselves and the project beyond the typical 'carbon neutral' standards that are the core of most current energy efficiency rating schemes. We envisaged a group of buildings that drew-in air pollution and breathed out fresh air for the neighbourhood. We pictured structures that harvested clean energy from the heat of the sun and of the earth to mitigate its own energy needs. A development that took in the polluted water of Bangkok's struggling waterways and returned it clean and fresh.

Our proposed solutions included a UV treatment and air scrubbing system, an extensive network of stormwater traps, structural use of cross-laminated timber and bamboo, porous concrete pavements and bio retention spaces, a tri-generation plant, wind turbines and photovoltaic glass. Through these initiatives we were proud to achieve a Gold rating through LEED v4, the new revised standard for high performance buildings worldwide.

Project:Motevetro, LondonArchitect:Richard Rogers PartnershipContribution:Structural

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Image Courtesy Katsushia Kida

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