

## **Architectural Homes**

### **Capability Statement**

4<sup>th</sup> Edition

### bec.studio

Project: Architect: Contribution:

Wooloowin House Bureau Proberts Structural & Hyraulic Services

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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: Seaview Terrace Architect: Popov Bass Architects

## **Our** Company

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

Founded on the 20-year international experience of Managing Director, John Tuxworth, the company provides a unique value-adding contribution across a range of market sectors and project types.



## **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: Green Roof Architect: Aardvarc Contribution: Structures | ESD de la

## **Our** Capabilities

Our Team of experienced professionals employ advanced analytical tools to drive highly functional & fit-for-purpose development.

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 experience 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. Project: Architect: Contribution:

Upper Lancaster Road, Brisbane Joe Adsett Architects Structural & Hydraulic Services

## **Our** Expertise

We have significant experience in the design and documentation of residential developments both in Australia and abroad, across the companies core disciplines of structural, civil, hydraulic, and ESD.

- > Structural
- > Civil
- > Hydraulic
- > ESD (Ecologically Sustainable Development)
- > Multi-storey
- > Low-rise Multi-residential
- > Detached Dwellings

#### **Multi-storey**

- > Residential towers in Brisbane, Angola, and Libya
- > Kelvin Grove Urban Village sustainability guidelines

#### Low-rise Multi-residential

- > Townhouse and apartment developments
- > Civil Infrastructure
- > Site Based Stormwater Management Planning
- > Road widening

#### **Detached Dwellings**

- > Luxury homes
- > Architect's own homes
- > High-end alterations & additions



01

PROJECT: ARCHITECT: SIGNIFICANCE:

Carson Woolstore Penthouse Tonic Architecture + Design Architectural homes | Heritage | Structures

This project consisted of a refurbishment to an existing apartment within the Carson Woolstore complex in Teneriffe. The strong character of the heritage building is enhanced through large exposed timber beams and columns.

The roof structure required strengthening to accommodate an impressive central chandelier. The chandelier weighs in excess of 1200 kg, and our strengthening works are cleverly hidden and discrete within the ceiling.

Based on our experience with other heritage projects, BEC maintained a high site presence. We worked closely with the other consultants during all stages of the project and waited until we had a comprehensive understanding of the project before finalising the design.

The overall result is one of pure luxury and this warehouse apartment is sure to impress.



PROJECT: ARCHITECT: SIGNIFICANCE: Walker Avenue Joe Adsett Architects Architectural homes | Structures | 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 it subject to prevailing south easterly sea breezes and a 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.



Winner – 2017 CIA Award for Excellence: Residential Buildings



## PROJECT: ARCHITECT: SIGNIFICANO

SIGNIFICANCE:

Nundah House Kahrtel Architectural homes | Structures

The Nundah House is a stunning architecturally designed home for which BEC was appointed to provide structural consultancy services.

BEC has a strong affinity with high-end residential design, which is evidenced through the innovative, buildable solutions that facilitate the often complex aesthetics of the architecture. Structural framing for this project is significant given the first floor cantilevers on three sides. These cantilevers are designed to disengage the first floor from the ground plan, to provide cover and also privacy to ground floor areas.

The Team also informed the passive solar design initiatives embodied in the architectural design.

The BEC team simplified, minimised and rationalised framing in support of a 300mm maximum structural floor-to-floor zone. BEC provided expert and sympathetic engineering a in order to support architectural intent.

ARCHITECT: SIGNIFICANCE:

**PROJECT:** 

Wooloowin House **Bureau Proberts** Architectural homes | Structures | Hydraulic Services

The Wooloowin House project consisted of a contemporary extension to an architects own home in Wooloowin. The original house was a simple cottage with a dated 60's extension that had low ceilings, limited windows and a dysfunctional layout.

BEC were involved with designing and documenting the demolition of the 1960's extension and the construction of a new two-storey wing at the rear.

The structural design featured a steel portal frame that was crafted on site and craned into place, requiring some interesting details to ensure that it was aesthetically pleasing and could be easily constructed. The hydraulic commission facilitated the seamless coordination of structure and plumbing, enabling maximum head heights.

The character of the original house was retained and enhanced through the use of sympathetic materials. The end result is an unassuming weatherboard clad extension that connects seamlessly with the original.





# 05

**PROJECT:**Killarney Crescent**ARCHITECT:**Sharon Fraser Architects**SIGNIFICANCE:**Architectural Homes | Structures

BEC were commissioned for engineering services for this new residence along the Northern NSW coast. The project consisted of a large three-bedroom home spread over two floors with expansive entertaining areas, and a pool that is structurally very complex.

The design features significant architectural concrete elements, suspended concrete slabs and large sections of glazing. Due to the complexity of the first floor suspended slab, the design required 3D modelling using finite element analysis. It was an architectural requirement to have no visible beams to achieve a clean ceiling profile. To achieve this the team proposed the use of an upstand beam. This solution reduced the slab thickness and produced minimal deflections.

The result is an economical engineering solution that achieved the desired architectural outcomes.

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Green Roof - Inwood St Aardvarc Architectural homes | Structures | ESD

The Inwood St project is a small residential addition which is simply a visual delight. Designed to disappear into the landscape the low maintenance green roof provides a space that can be enjoyed not only by the owners and occupants but by the local wildlife.

The project features

> a green roof featuring native grasses to hide and blend the structure within its surrounding environment

- > decorative, textured off-form concrete walls that take on a soft organic form
- > architectural steel work

BEC undertook finite element analysis in order to make the roof size and profile as small as possible. The dominant roof form appears to float unsupported due to the placement and slenderness of load-bearing elements. Every structural component of this project was exhaustively refined and integrated to provide the optimal architectural outcome, with an amazing result.





## 07

PROJECT: ARCHITECT: SIGNIFICANCE: Milford Road S3 Architects Architectural homes | Structures

This project consisted of alterations and additions to an existing character home in Alderley.

BEC worked with the architect to realise the addition of:

- > Double carport with storage
- > New Bedroom, media room & lounge
- > Outdoor living room

The framing of different roof levels enable the incorporation of clearstory louvers to the new living room, and a combination of bracing and sway-frames were incorporated at the outer edge of the external room.



PROJECT: ARCHITECT: SIGNIFICANC

Kenbury St Joe Adsett Architects SIGNIFICANCE: Architectural homes | Structures

The design of this home is modern whilst still managing to incorporate a beautiful sense of warmth and character.

The original Post-War Queenslander was retained and raised. The alterations and additions maintain the traditional character of the original house, yet blend seamlessly with the major addition which readdresses the site. Cantilevers and massive framed openings maximise the site circulation and connectivity to the outdoor space.

Coordination between the architectural and structural design was undertaken using Revit.



# PROJECT: ARCHITECT: SIGNIFICANCE:

Tallebudgera Residence Haysom Architects Architectural homes | Structures | Civil | Hydraulic

This project is a new pavilion-style home on a 46,560m<sup>2</sup> block at Tallebudgera, in the Gold Coast hinterland. The site is zoned as Rural Residental and adjoining properties include a horse riding area.

Site constraints per the Gold Coast City Planning Scheme include a low potential for bushfire hazard, acid sulphate soils, flood inundation and unstable soils. Despite these challenges, the majority of mature trees on the site will be retained, with the structure lightly touching atop a ridge.

The new dwelling will demonstrate responsible environmental management, with rainwater harvesting tanks positioned under the suspended timber floor of the western pavilion, and a package sewerage treatment plant. A neutral colour palette will further assist to minimise the impact of this development upon the site.

Image Courtesy Haysom Architects





**PROJECT:**Y+W House**ARCHITECT:**Arqus Design**SIGNIFICANCE:**Architectural homes | Structures

This project is a new luxury residence on the beach-front at Salt, South Kingscliff, NSW.

Structural design of a steel portal-frame bracing system was utilised to maximise livability of the home by enabling a large expanse of northern glazing. A timber bridge spans the internal atrium to link the 2nd floor spaces. The residence also has a 100m<sup>2</sup> concrete roof terrace overlooking the nearby beach, supported on intermittent structural blade columns. Cantilevered steel beams were utilised for the balcony areas to eliminate the need for visible supports.

This was our first Revit coordination of a residential detached dwelling. For most architecturally designed homes the small additional expense incurred by documenting and coordinating in 3D can return construction cost savings in excess of 10 fold.

## **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 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.



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





