
Kye Taylor—

Principal - Structures



Experience Overview—

With over 11 years design experience and has been involved in the permanent and temporary design and documentation of a wide range of Commercial, Residential, Infrastructure and Mining projects in Australia and Overseas, including Hospitals, Bridges, Tank Structures and High Rise buildings.

Involved in the concept design, design development, detailed design, of cost effective structures. Also involved in incorporating temporary works requirements into permanent works designs and construction staging analysis. Graduated at the University of Sydney with a bachelor of Civil Engineering (Structures) with honours. Further studies included completing a Masters of Engineering (Structural) at the University of Sydney.

Skilled in reinforced and post-tensioned concrete design using RAPT, RAM concept and hand methods, also involved in the stability of structures using ETABS and Strand7. Proficient in structural steel analysis and design as well as buckling analysis using Microstran and Strand7. Experienced in structural investigation and verification. Involved with advanced non-linear modeling of structures, also involved in advanced analysis and design using FEA software. Familiar with Australian, British, American and Eurocodes.

Relevant Project Experience

- Zaha Hadid, OPUS Cube - Dubai
- Fosters, Index Building - Dubai
- Tamkeen Tower -Saudi Arabia
- Dubai Mall Zabeel Expansion - Dubai
- Bridge 1 Majura Parkway - Canberra, ACT
- Branxton to Sydney Off ramp, Hunter Expressway – Newcastle, NSW
- International Airport Carpark Cable Stay Bridges– Sydney, NSW
- Pluto Flare Tower - Burrup Peninsula, WA
- BHP Rail Bridges - Port Headland, WA

Position—

Principal, BG&E Pty Limited

Qualifications—

- 2006 / Bachelor of Civil Engineering (Structures) (Hons), USYD
- 2012 / Masters of Engineering (Structural), USYD
- MIEAust

Career Milestones—

- 2016 / Started BG&E London Office.
- 2015 / Gained Principal Status.
- 2014 / Gained Lead Engineer Status.
- 2013 / Commenced work with BG&E Dubai.
- 2013 / Awarded Masters of Engineering (Structural) at The University of Sydney.
- 2012 / Member of BG&E Technical Committee Group
- 2011 / Gained Senior Engineer Status
- 2010 / Commenced work with BG&E Sydney.
- 2009 / Commenced work with BG&E Perth.
- 2006 / Awarded Bachelor of Civil Engineering with honours at The University of Sydney.
- 2005 / Commenced employment with BG&E.

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Detailed Project Experience—

Structural Engineering

OPUS Tower – Dubai

Comprehensive re-design of Zaha Hadid Tower / Cube structure located in Business Bay, Dubai, 2 x 20 storey towers with large spanning 5 storey truss spanning between each tower. Change of use from dedicated office building to mixed use office, hotel, residential. Staged construction analysis of 5 storey steel truss spanning 45m and incorporation construction forces into permanent works design. Incorporation of temporary works construction requirements in general into permanent works design.

Index Building - Dubai

A \$1.2 billion 80 storey mixed residential / office tower situated in Dubai. Miscellaneous steelwork design, including large span trusses and composite steel beams. Post-tensioned concrete design including Penthouse level slabs as well as major transfer beams, transferring gravity as well as lateral loads.

Doha Convention Centre - Doha

A 112 storey 560m high \$1.8 billion tower situated in Doha Qatar, comprising of hotel, office and residential. Comprehensive review of alternatives of structure including slab systems, proposals including precast hollowcore slab systems and post-tensioned slabs. Alternate proposal for major transfer trusses including composite concrete, steel and post-tensioned solution spanning up to 45m.

The Crescent - Baku, Azerbaijan

A \$1billion 7-star hotel, located in the Caspian Sea, off Baku, Azerbaijan. Comprehensive review of alternatives of structure, including a 150m long steel / composite concrete and steel space truss double arch structure providing stability to the structure in all directions. Piled RAFT alternatives as well as ETABs model review.

Fiona Stanley Hospital - Perth

A \$1.76 billion hospital located in Murdoch, south of Perth. Complete design development role including a lead design role on the following: Clinical – Podium / Ward – Tower (Building B) – Foundation Design, Retaining Wall Design, Service Tunnel Design, Podium (Clinical) Slab Design, Precast Façade Design, Oncology / Linear Accelerator Bunker Design.

Was also intimately involved with the design development of all the above items, including extensive consultation with other design consultants, architects, builders, and sub-contractors.

Bridge 1 Majura Parkway - Canberra, ACT

Lead engineer for superstructure of twin 4 span continuous incrementally launched post tensioned concrete bridges over the Molonglo river in Canberra. With spans up to 54m and on a 30 degree skew, advanced grillage analysis was undertaken in comparison with FEA models, to accurately account for the transverse load distribution of the single cell box girder. Concentric post tensioning was utilized during launching with second stage draped tendons installed to improve efficiency.

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Tamkeen Tower -Saudi Arabia

Complete design and development of two 40m spanning composite steel floors with complicated curved edge conditions. Floors consisted of restaurant and building maintenance unit. Vibration / acceleration criteria carefully considered using Microstran and by hand methods.

International Airport Carpark Cable Stay Bridges— Sydney, NSW

Comprehensive verification of a 20m span pedestrian and road cable stayed bridges spanning between carparks at the International Airport in Sydney.

Branxton to Sydney Off ramp, Hunter Expressway - Newcastle, NSW

Lead engineer for superstructure of a 5 span continuous incrementally launched post tensioned concrete bridge over the F3 near Newcastle. With spans up to 38m and curved in elevation and plan, it is situated over two seams of disused coal mines, significant time was spent developing the design criteria. Advanced grillage analysis was undertaken to accurately account for the transverse load distribution of the single cell box girder with varying height webs. Single stage non concentric post tensioning was utilized during launching and in service to improve efficiency, increase ductility, and minimize construction time.

BHP Rail Bridges – Port Headland, WA

Comprehensive verification of the superstructure of a three span simple supported through girder for Iron ore trains. With spans up to 44m, buckling analysis using Strand7 in comparison with code approaches to verify unrestrained top flange stability as well as detailed fatigue checks.

Great Northern Highway Realignment – Port Headland, WA

Concept design of 60m simply supported spanning composite steel concrete box girder road bridge.

Expert Witness Support –NSW

Expert witness support role for an industrial slab on ground investigation. Extensive modeling carried out using Strand7 to capture staging and the impact of differential shrinkage on slab behaviour. Staged analysis for repair works predicted cracking history, and future cracking patterns.

Donggi – Senoro LNG Tank - Sulawesi, Indonesia

Comprehensive verification of 150ML capacity Liquid Natural Gas tank located in Sulawesi, Indonesia. The full containment outer prestressed concrete tank was verified during construction load cases, including hydrostatic and pneumatic testing. Service load cases complying with stringent crack width criteria. Ultimate load cases including earthquake, as well as non-linear cryogenic spillage load cases.

Kenya Water Treatment Plant - Chinchilla, QLD

Complete design and development of complicated water treatment facility to filter extracted coal seam gas water. Involved in assessing crack widths and in-service reinforcing stress to AS3735, as well as assessing earthquake induced actions due to liquid sloshing to New Zealand standards. Analysis was carried out using Strand7, with design carried out using in-house spreadsheets.

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Inpex LNG Tank - Darwin, NT

Comprehensive verification of 160ML capacity Liquid Natural Gas tank located in Darwin, Northern Territory. The full containment outer prestressed concrete tank, with a 92m spanning concrete arch roof, was verified during staged construction load cases, including hydrostatic and pneumatic testing cases. Service load cases had to comply with stringent crack width criteria. Ultimate load cases including earthquake and blast, as well as non-linear cryogenic spillage load cases.

Pluto LNG Project - Burrup Peninsula, WA

Comprehensive internal loading review of two flare towers for Woodside Energy. One tower, over 40 stories tall, also included 5 flare rises at up to 3m diameter. Loading review included comparisons with ASCE as well as AS1170 in conjunction with expert wind consultant advice.

Shipra Housing – Ghaziabad, India

Complete schematic design of 6 residential towers in Ghaziabad, New Delhi. Located in an extremely high seismic zone, extensive effort was spent understanding the seismic hazard, including ensuring ductility compatibility assumptions in columns, slabs and core walls.

Port Waratah Coal Terminal - Newcastle

Verification and crack investigation of Coal loader support beams. Comprehensive structural investigation showing the cause of the cracking, and the impact of the staged construction method. Advanced design methods removed the need for remediation.

Breakfast Point - Sydney

Complete design development of 2 residential buildings located in Sydney. Project consists of 5 and 10 story buildings. Design included ETABS model development, core wall and retaining wall design, also post-tensioned slab design.

AHM Building - Wollongong

An 8 storey office building located at Wollongong. Design of columns and miscellaneous plant room and feature awning steelwork.

World Trade Centre - Doha

Review role of 56 storey tower located in Doha. ETABS model review as well as typical floor composite steelwork and composite columns.

Elinya Residential Complex - Rhodes

Complete design development of two transfer plates picking up 8 stories. Including RAM Model development, documentation review of the two-way flat plate post-tensioned transfer plate.

City Square - Perth

A comprehensive structural review of BHP Billiton's 50 storey tower and 4 basements located in Perth, including ETABS model review, typical floor review of a composite steel floor and column system, as well as review of two perimeter mega trusses.

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Waterside Residential Complex - Rhodes

Comprehensive structural review of two post-tensioned transfer plates picking up 8 stories, including RAM model review and documentation review.

Palm Canal Towers - Dubai

Concept, schematic and final design of two 27 storey office buildings as part of the 6 tower development of Palm Canal Towers located in Dubai in Jebel Ali. Complete ETABS model design development as well as tower floors. Typical floors consisted of continuous composite steel beams supporting precast planks with an in situ topping, all supported by composite steel tube columns.

Badrah Towers - Dubai

Schematic design of typical floors of two 32 storey office towers located in Dubai. Design included composite steel beam and composite steel tube columns.

St Georges Terrace - Perth, WA

Comprehensive verification of a refurbished 16 story tower in Perth. Including extension of the floor plate at every level, making the core eccentric. Torsional modes needed close attention with regard to serviceability wind accelerations, with extensive time spent liaising with expert wind consultants.

Jumeirah Beach Hotel – Dubai

Extensive refurbishment \$200M, 25 storey base build structure. Modelling of existing towers with ETABS. Justifying extensive new penetrations through existing shear walls to enable completely refurbished new structure.

Octavian Towers – Dubai

Concept design of 2 x 30 storey towers with common podium located in Business Bay, Dubai. Innovative use sloping columns to minimize transfer beams as well as satisfy architectural intent.

The Address Boulevard Hotel – Dubai

Temporary works construction engineering role for 380m tower located in Downtown Dubai.

The Dubai Mall Zabeel Extension – Dubai

Concept design, technical support and authority liaison role.

Fountain Views Towers – Dubai

Value engineering re-design solution for 2-50 storey residential towers and an 80 story hotel.

Mall of Emirates Expansion – Dubai - Value engineering options

Aloft Hotel – Dubai - Value engineering options

N01 JLT Tower – Dubai –Concept design, Technical Support

Mei-sam Mall – Dubai –Technical support

Strada Hotel – Dubai – Concept design

Atria Towers – Dubai – Value engineering options