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SECTOR BROCHURE

# Buildings

*Quay Quarter Tower — Sydney, NSW, Australia.  
Structural Engineering, Construction Engineering,  
Materials & Durability, and Sustainability services provided.*

**BG  
&E**  
Part of SYSTRA



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# BG&E is an international civil and structural engineering consultancy recognised for delivering **innovative, award-winning designs** that prioritise practicality and constructability.

With a team of more than 800 people across 16 offices — spanning Australia, New Zealand, South East Asia, the United Kingdom, and the Middle East — we deliver the highest standard of service across our disciplines.

Clients consistently return to us for our responsiveness and proven ability to provide tailored solutions on complex and challenging projects. This is reflected through industry recognition, client commendations, and numerous awards.

In 2025, BG&E joined forces with SYSTRA, a global leader in public transport and mobility engineering. This partnership expands our technical capability, strengthens our international networks, and support long-term growth across major infrastructure markets and the complex buildings sector.

*Parramatta Square — Parramatta, NSW, Australia.  
Structural Engineering, Civil Engineering, and  
Flooding & Hydrology services provided.*



# The Built Environment



*Sydney Charles Quarter — Perth, WA, Australia.  
Structural Engineering services provided.*

**Drawing on decades of experience, our approach centres on delivering constructable and efficient structures by simplifying design and applying innovation where it adds genuine value, supported by a deeply embedded engineering culture.**

We have built a reputation as one of Australia's leading structural engineering firms, delivering iconic and award-winning projects — notably in Australia and the Middle East.

We work collaboratively with architects, builders, and other disciplines to ensure coordinated outcomes and deliver projects that generate social, environmental, and economic value for clients and communities.



# Structural Engineering

**Structures define both a building's functionality and its architectural expression. Delivering them requires not only rigorous analytical, mathematical, communication, and documentation skills, but also creativity and design insight.**

BG&E is one of the few structural engineering consultancies operating across all market sectors — from tall buildings and adaptive reuse projects with heritage considerations, to high-performance facilities such as data centres, and complex structures like transit-oriented precincts.

We go beyond delivering technically complete designs. We provide practical, cost-effective, and innovative solutions tailored to each project and this expertise has earned us recognition as a trusted partner for technically complex projects across the industry.

*50 First Avenue — Maroochydore, QLD, Australia.  
Structural Engineering services provided.*



# Technical Expertise



Civil  
Engineering



Construction  
Engineering



Digital  
Engineering



Façade



Flooding &  
Hydrology



Geotechnical



Materials &  
Durability



Structural  
Engineering



Sustainability



Timber

**We take pride in our integrated, in-house multi-disciplinary collaboration.**

Our Building Structures teams combine strong design synergy with a deep understanding of the relationships between structure and architectural aspiration, services, construction materials, and methodologies. This enables us to achieve the most optimal and sustainable built solutions for clients and communities.



*JW Marriott Marquis Hotel — Dubai, United Arab Emirates.  
Structural Engineering services provided.*



## CIVIL ENGINEERING

We deliver civil engineering projects of varying scales — from highways, local roads and rail lines to land development, urban civil and public domain spaces. Our expertise combines technical know-how and efficient resource utilisation to deliver sustainable, optimal outcomes. We have extensive experience with a variety of procurement models — both client-side and for contractors — ensuring we can operate in a range of diverse and often nuanced environments.



## CONSTRUCTION ENGINEERING

From high-rise towers to major infrastructure projects, each presents unique construction challenges. We keep pace with industry standards, safety regulations, and best practice products and methods to ensure our clients deliver their projects on time and within budget. We design structural and civil temporary works solutions and sequencing advice to support our clients' construction methodology.



## DIGITAL ENGINEERING

BG&E, a leader in digital engineering, has earned a reputation for excellence by consistently advancing systems and workflows. Our ISO19650 certification underscores our commitment to the highest standards in information management for built assets. We simplify the complex by streamlining workflows through integrated design, analysis, and documentation, and employ enhanced collaboration through the effective use of GIS, visualisations and animations.





*Westminster Tower — London, United Kingdom.  
Structural Engineering, Façade, and Materials & Durability services provided.*



### FAÇADE

Internationally recognised for our innovative façade solutions, BG&E Façade Consultants provide pioneering façade design, architectural detailing and engineering, thermal performance, materials science, remediation and recladding solutions. Our team of structural engineers, architects, building physicists and designers seamlessly collaborate to realise beautiful buildings with optimal outcomes for owners, occupants, visitors and tenants alike.



### FLOODING & HYDROLOGY

We believe that understanding flood risks is key to delivering positive outcomes. Taking a holistic approach, our team of water engineers, flood modellers and hydrologists ensures the delivery of resilient, effective and practicable infrastructure design. Our services encompass surface water and hydrologic investigations, flood modelling and floodplain risk management, integrated water management, and waterway structure and design.



### GEOTECHNICAL

We work closely with planners, engineers, and scientists from project inception through to the detailed design and construction in the building, rail, bridge, road, energy and ports sectors. Our services include desk studies, investigation scoping, site formation, slope and foundation design, deep excavation and numerical assessment.



### MATERIALS & DURABILITY

With strong links to academia and long-standing industry partnerships, our Materials team provides materials selection, specification and optimisation, durability design, design and specification conformance, constructability staging, asset inspection and remaining life assessments. We also offer defect and dilapidation remediation strategies, nondestructive and destructive materials testing, conflict resolution and support related to construction law.



### STRUCTURAL ENGINEERING

BG&E is one of Australia's leading structural engineers and has delivered iconic, award-winning projects across the globe. Operating across all market sectors, BG&E delivers our clients' visions for a project by working collaboratively with architects and stakeholders. We have a focus on providing constructable structures which we achieve by simplifying designs and embracing innovative approaches.



### SUSTAINABILITY

One of the most significant enhancements of sustainability in construction is achieved through good design. This encompasses integrating sustainability goals as a fundamental aspect of the design process from the project's outset, where the greatest impact can be achieved. Using a systems-based approach, BG&E looks at the wider context for each project and considers the long term. This holistic framework enables informed decision-making on pathways to improve outcomes that are not possible using more traditional approaches.



### TIMBER

Through a strategic merger with Timber Design Studio, BG&E's Timber team combines our engineering excellence with Timber Design Studio's unparalleled expertise in mass timber construction and materials science that is not found outside Europe. Our services include structural and building physics engineering, manufacturing design, façade and fire engineering, procurement, project management, and cost planning.

*New Melton Hospital — Melton, VIC, Australia.  
Structural Engineering and Civil Engineering services provided.*





# Services

BG&E contributes at all stages of design, including:

- Master planning and design competitions.
- Concept schemes for planning and feasibility study.
- Design development.
- Detailed design and construction documentation.
- Construction phase support and site supervision.
- Condition assessment for existing buildings to provide future-proofing design strategies and remediation advice.
- Due diligence, structural peer review, and value optimisation.
- Post-construction building response and movement monitoring.

*Bayz101 — Dubai, United Arab Emirates.  
Structural Engineering services provided.*



# Sectors



Adaptive Reuse



Aged Care &  
Retirement Living



Aviation



Build-to-Rent



Car Parks



Commercial  
& Office



Data Centres &  
Mission Critical



Defence



Education



Energy &  
Renewables



Façade



Healthcare



Heritage &  
Refurbishment



High Rise  
Buildings



Hotels



Industrial



Mixed-use



Public Arts  
& Culture



Rail, Stations  
& Over Rail



Residential



Retail



Sports &  
Entertainment



Sports &  
Recreation



Student  
Accommodation



Urban Civil



# Engagement & Delivery Models

Tailoring our approach to each client's specific requirements, BG&E is experienced across various design engagement and project delivery models:

- Design & Construct (D&C).
- Partial Design, Tender & Novation.
- Traditional Design & Tender.
- Value Engineering.
- Early Contractor Involvement (ECI).
- Strategic masterplan design advice.
- Whole building life-cycle assessment and planning.
- Certification and independent peer review.

*West Side Place — Melbourne, VIC, Australia.  
Façade services provided.*



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At BG&E, we are united by a common purpose — we believe that truly great engineering takes curiosity, bravery and trust, and is the key to creating extraordinary built environments.

Our team of more than 800 highly skilled people, in offices across Australia, New Zealand, Singapore, the United Kingdom and Middle East, design and deliver engineering solutions for clients in the Property, Transport, Ports and Marine, Water, Defence, Energy and Resources sectors.