
SECTOR BROCHURE

Tall Buildings

JW Marriott Marquis Hotel (355 metres) — Dubai, United Arab Emirates.



**BG
&E**
Part of SYSTRA

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.



Tall Buildings

BG&E is widely recognised in the tall building sector for our technical excellence, innovative value-engineering solutions, and a deeply embedded engineering culture.

With more than 55 years of structural and civil engineering experience, our esteemed history in delivering tall buildings dates back to 1998 in Perth with Central Park Tower (249 metres) — the tallest building in Australia at the time.

Our global portfolio includes slender tall towers from 50 to 300 metres and landmark super-tall towers over 300 metres. We have delivered high- and medium-rise projects and major basement structures across residential, hotel, retail, commercial, and mixed-use sectors.

We have successfully delivered projects in regions with significant seismic activity, including the United Arab Emirates, New Zealand, the Philippines, Indonesia, Japan, and Cyprus.



*Central Park Tower (249 metres) —
Perth, WA, Australia.*

SERVICES

BG&E contributes at all stages of tall building 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.

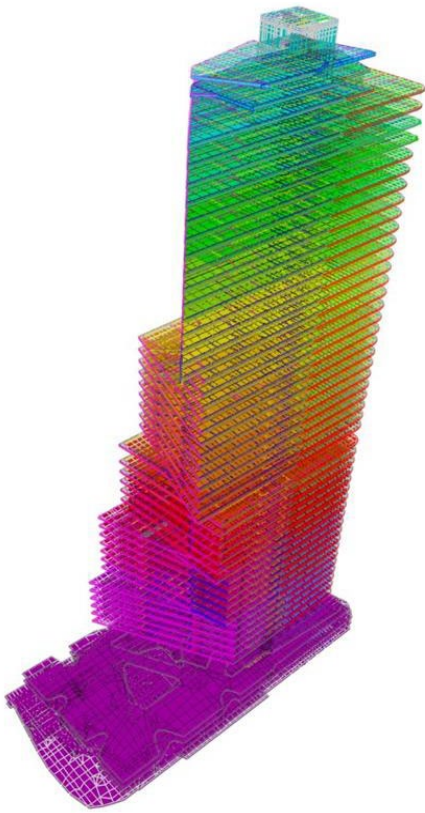
ENGAGEMENT & DELIVERY MODELS

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.

*Vision Tower (260 metres) —
Dubai, United Arab Emirates.*





Key Considerations

We are cognisant of the key considerations involved in designing tall buildings and have extensive experience navigating these.

- Delivery in **highly constrained environments**, including very soft geological ground conditions, high water tables, extreme weather conditions, and high seismic activity regions.
- Control of building **lateral sway and acceleration** to maintain occupants' comfort.
- Management of **time-dependent movements** from concrete creep, shrinkage, and axial shortenings, particularly for hybrid structural systems or materials, and between new and existing structures for adaptive reuse projects.
- Design and detailing of **movement and vibration isolation**.
- Optimisation of **material selection** to balance strength, stiffness, workability, sustainability, and logistic supply for high-rise construction.
- Integration of **robust construction engineering and well-designed temporary works** with permanent structural solutions to guarantee safety, buildability, and facilitate accelerated construction methodologies.



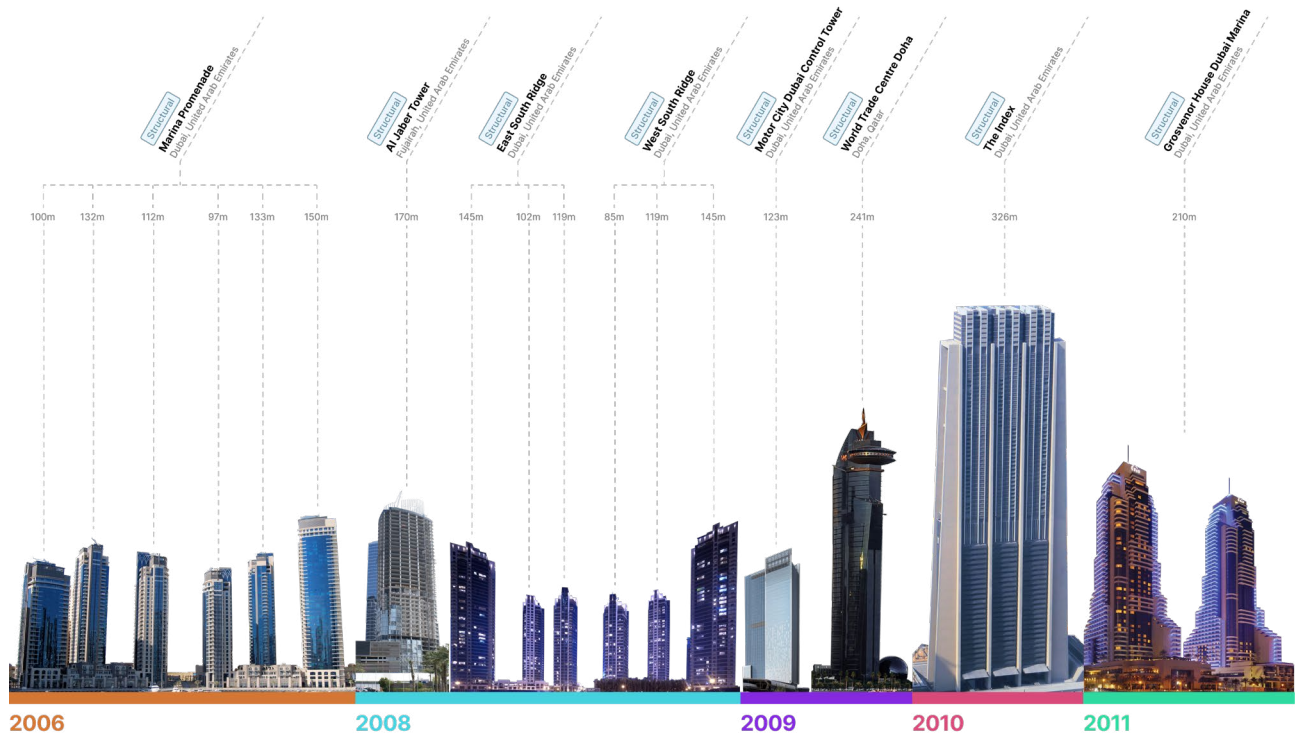
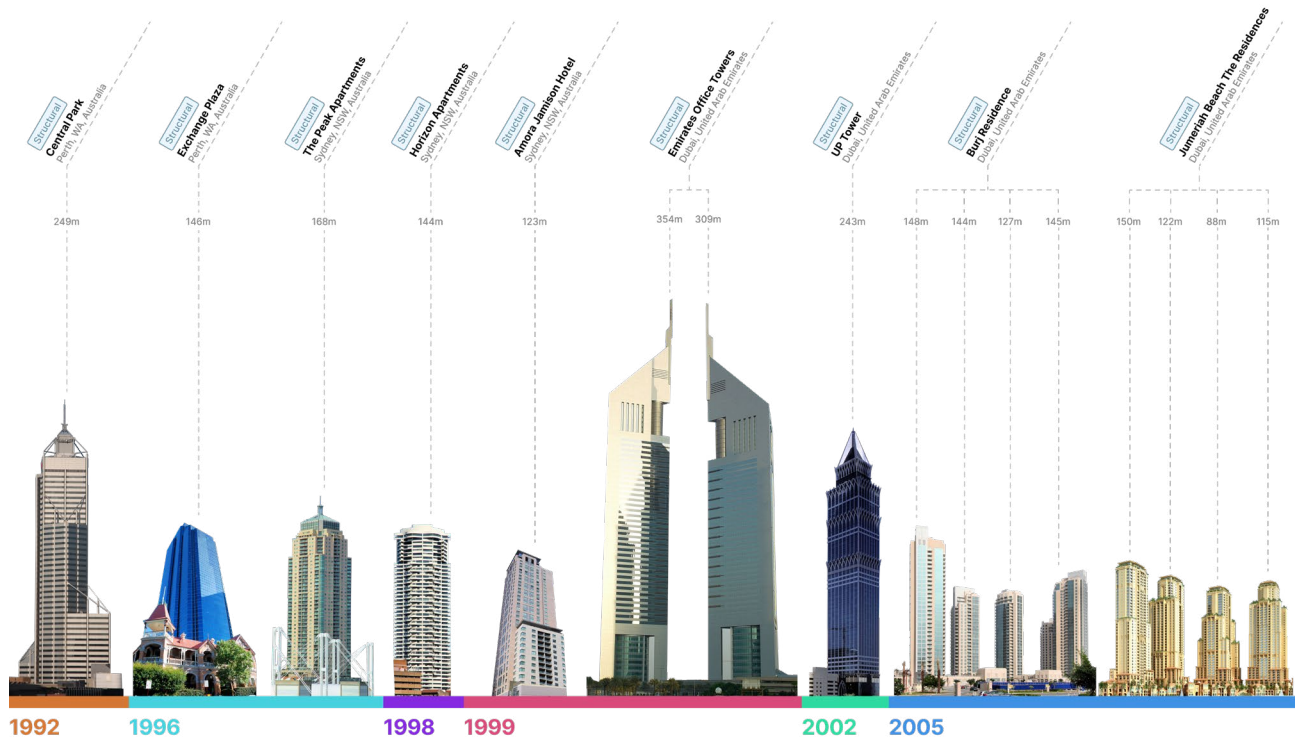
*Finite element model:
Quay Quarter Tower —
Sydney, NSW, Australia.*

Tall Buildings Structures Technical Expertise

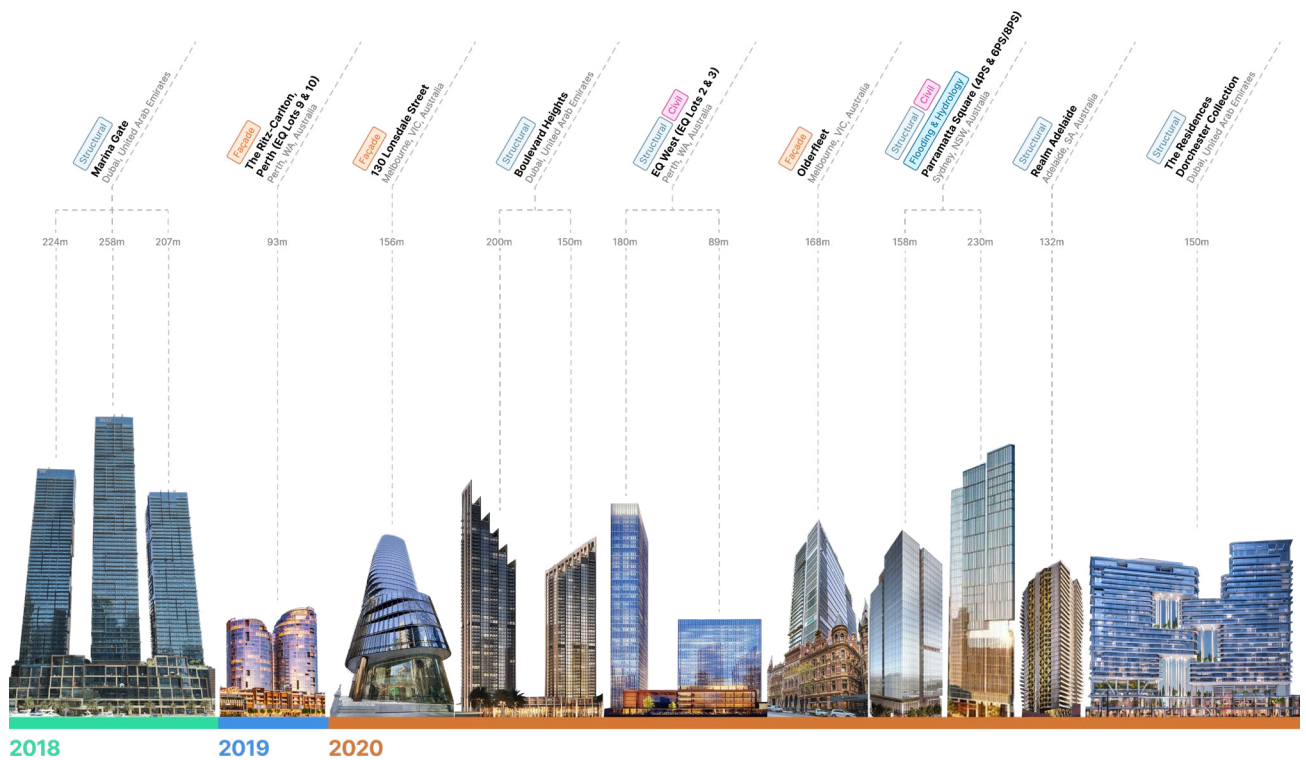
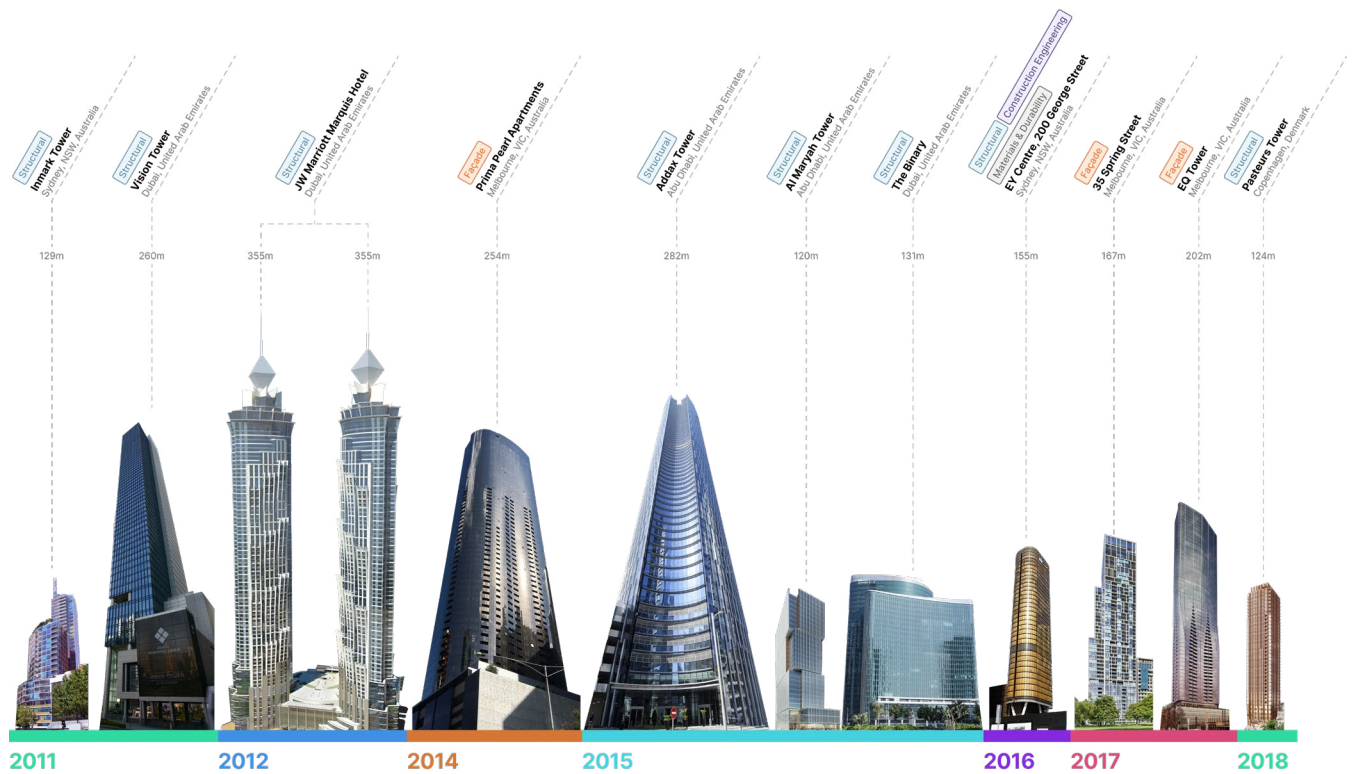
Our integrated multi-disciplinary teams deliver optimal, sustainable built solutions, underpinned by strong design synergy and a deep understanding of the relationship between structure and architectural aspiration, building services, and construction materials and methodologies.



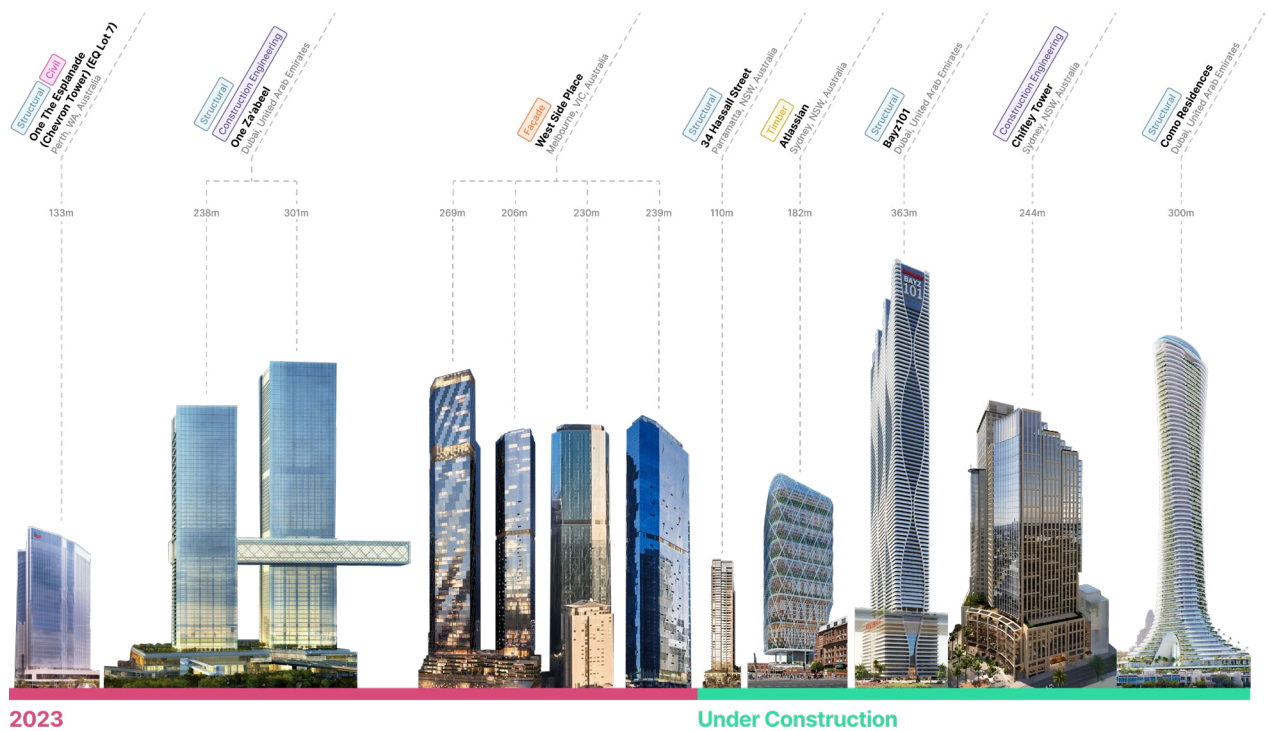
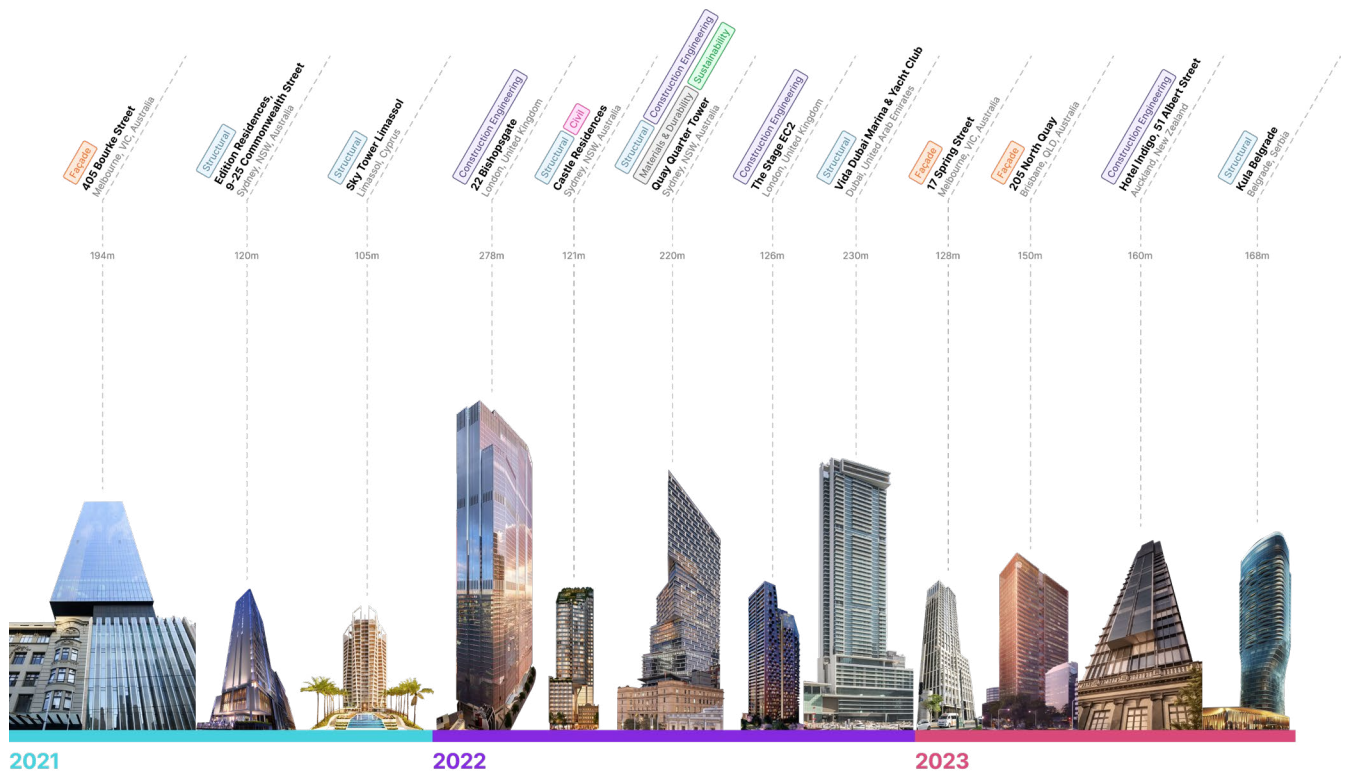
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Why BG&E?

VALUE ENGINEERING

We have a proven track record for cost-effective innovation with a wide range of structures and construction techniques, adding value through cost-effective rather than cost-minimal engineering services. Our reputation is built on collaboration, constructability, and innovation — working closely with planners, architects, developers, builders, and stakeholders to bring complex visions to life.

BUILDERS ENGINEERS

Our focus on buildability, coupled with long-standing relationships with major builders in selected markets, has earned BG&E the renowned reputation of “Builders Engineers”. We understand the importance of constructability, efficiency, and speed of delivery. Our construction engineering experience enables us to provide advice on both permanent design and temporary conditions during the construction phase.

*The Index (326 metres) —
Dubai, United Arab Emirates.*





*Parramatta Square (80-230 metres) —
Parramatta, NSW, Australia.*

HIGH RISE EXPERTISE

BG&E is internationally recognised as one of the top structural engineers for the design of tall and super-tall buildings, ranked 10th among the world's leading structural engineers for design by the Council on Tall Buildings and Urban Habitat (CTBUH) in its list of 100 of the World's Tallest Buildings.

COMBINED DISCIPLINES LEADERSHIP

BG&E originated as a structural engineering firm and has since evolved to offer integrated façades, materials and durability, construction engineering, geotechnical, urban civil and flood engineering services along with other complementary services in a wide range of Building market sectors. This well-rounded, combined expertise has successfully set BG&E apart from our competitors.

DEEP BASEMENT CAPABILITY

BG&E has vast experience in developments adjacent or directly on top of transit corridors, heritage constraints, challenging ground conditions, and complex retention structure interface. Our in-house geotechnical engineers work integrally with structural engineers to optimise deep basement solutions.

DESIGN FOR FUTURE

Sustainability considerations are integrated by BG&E at every stage of design — including optimised and resilient structural design for future-proofing, sustainable material selection for long-term durability performance, circular economy and material reuse options, carbon-neutral design goal advice and monitoring, and strong ties with R&D academics and industry suppliers to stay ahead of design innovations.

The SYSTRA Group — a global engineering and consultancy leader with 11,000 people worldwide — is now strengthened by BG&E's international buildings capability, complementing SYSTRA's long-established expertise in transport and mobility infrastructure.

Building on BG&E's reputation as a leading structural engineering practice delivering iconic, award-winning projects, the Group provides building solutions across complex and commercial developments, healthcare, education, data centres, adaptive reuse, and transport-related facilities worldwide.