DISCIPLINE BROCHURE

Timber

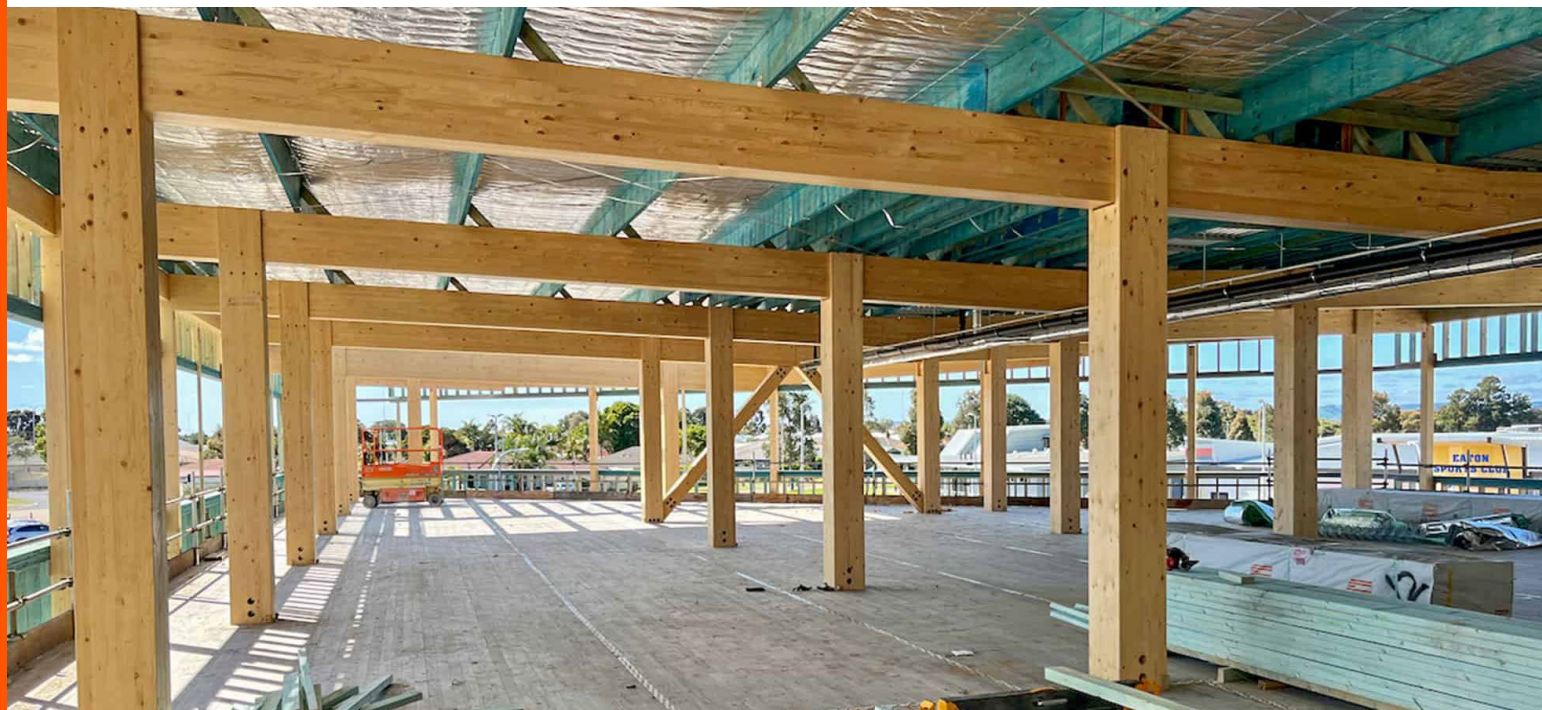
BG&E
Part of SYSTRA

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

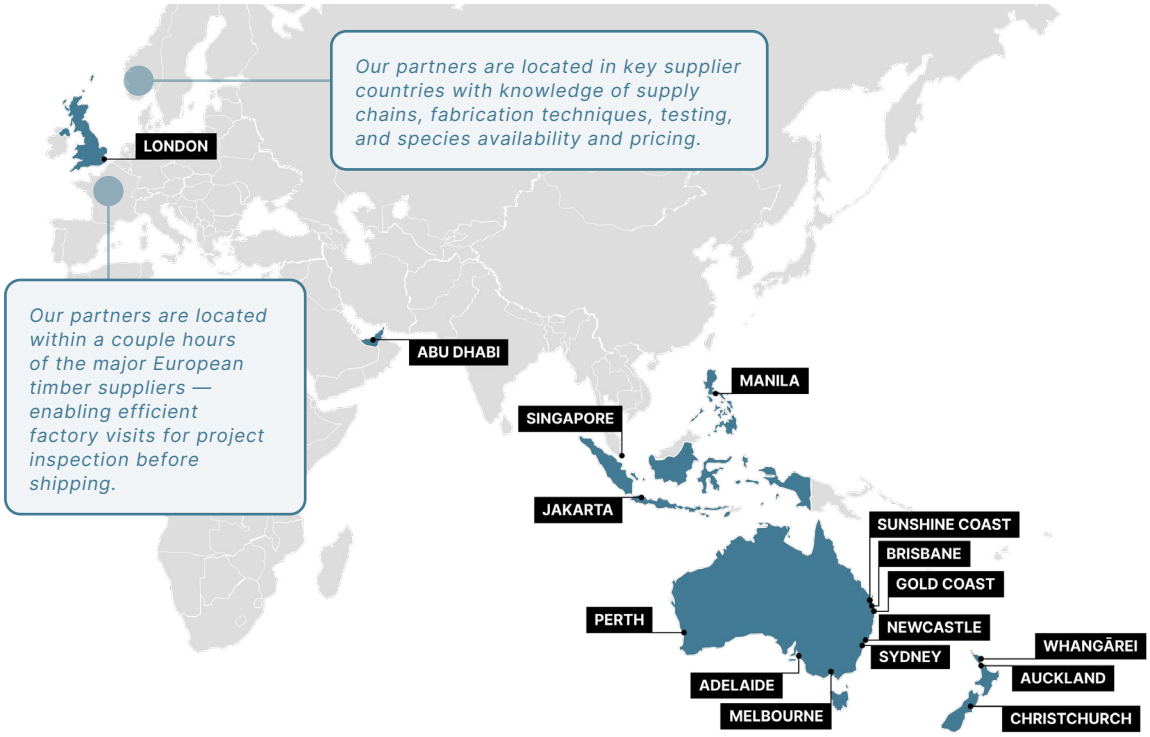
With a team of more than 800 people across 16 offices — spanning Australia, New Zealand, South East Asia, the United Kingdom, and the Middle East — we deliver the highest standard of service across our disciplines.

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.



Working to Shape & Design the World of Tomorrow



After more than two years of partnership, BG&E and Timber Design Studio (TDS) have joined forces to provide timber design solutions to the growing Australasian mass timber construction market — bringing sustainable and forward-thinking design approaches to mainstream society.

The BG&E timber team now combines BG&E's established presence and reputation for innovative structural solutions and materials science, with TDS' long history and expertise in mass timber construction, only found outside of Europe in a select number of countries, to deliver the best outcome from the project team.

Collaboration with Europe equips our team with a thorough understanding of certification and testing requirements for mass timber products in the United Kingdom and Asia Pacific region. It also facilitates the transfer of knowledge and expertise gained from Europe's advanced experience in mass timber construction, which is still unique to our developing southern hemisphere market.

Design for Timber

It is important that our clients understand that timber design requires a higher level of detail to be completed earlier in the project program.

To allow competitive tendering for our clients and flexibility of procurement, we complete the mass timber detailing to 100% design — ensuring clients do not need to engage a manufacturer earlier than necessary on a project.

1 Pre-Study & Concepts

- Project definition
- Structural concepts
- Review and evaluate timber structural solutions

2 Schematic Design

- Timber fire engineering
- Mass sizing of elements
- Connection detail concept
- Service reticulation strategy

Current Australian procurement position to nominate a manufacturer.

3 Engineering & Detailing

- Detailed design
- 3D BIM model
- Procurement planning
- Full connection details (2D)
- Fire engineering of connections

4 Planning & Management

- Fabrication drawings
- Construction drawings
- Logistical management planning

Traditional European model involves introducing a manufacturer or construction company — however, BG&E's capability allows for design advancement to this stage.

5 Construction

- Construction execution
- Shop drawings

Solutions Underpinned by Creativity & Collaboration

We work with clients and other stakeholders to challenge conventional wisdom, pioneer new benchmarks in technical excellence, design safety into projects and leverage mutually rewarding delivery models.

We maintain harmonious collaboration between our timber specialists and related departments.

With a comprehensive suite of in-house complementary engineering disciplines, BG&E is well placed to deliver high-quality timber solutions.

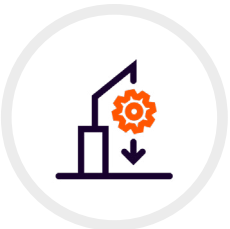
Bridge

Construction Engineering

Digital Engineering

Façades

Materials & Durability



Structural Engineering

Sustainability

Timber

Key Considerations When Designing for Timber

Our specialist timber team help educate companies on how to best utilise various timber products, by providing knowledge on supply chains, fabrication techniques, species availability, and pricing.

Our team help our clients bring their vision into reality — we are the cross over point for where vision and constructability meet.

BUILDING IN TIMBER BEST PRACTICE

Early Engagement is Essential

Designing timber buildings begins with early engagement. Timely decisions prevent costly setbacks.

Beyond Traditional Roles

Timber building design goes beyond architecture and engineering. Consider procurement, design for fire, material science and acoustics.

Choose Timber Wisely

Selecting the right product and species is crucial — optimal cost solutions depend on it. Ensure to utilise timber where it makes sense.

The Environment Matters

Internal and external factors impact your choice. Consider durability, species selection, exposure to moisture and UV.

Supplier Selection

The design process should be independent of manufacturers, but it is important to understand and clearly identify procurement pipelines for any species and/or product specified.

Cost Analysis

Understanding construction and fit-out benefits of timber construction and their associated cost-savings is vital — thorough cost analysis is key.

Additional Timber Services

LOGISTICS

We consider all logistical constraints in our design for production, transportation to sire, and installation.

- Management of client tender and procurement.
- Familiar with terms and conditions of sales and delivery.
- Vessel transport from Europe can be inspected prior to shipping.
- Designed with production and transportation optimisation in mind.
- Project delivery and manufacturing coordination for optimised delivery sequence to site.

SUPPLY CHAIN

Our partners in central Europe are located within a few hours of the major timber manufacturers, making factors inspections prior to shipping feasible.

- Identified risk items for delivery: missing elements, inaccurately shaped elements, and damages during transport.
- Customised pallets to load engineered timber components, e.g., specific stillages to load and offload to the container.
- Container shall be documented and treated within a gasification process before entering Australia's borders.

PRODUCT TESTING & FIRE SAFETY

Dr. Michael Klippel, founding member of IGNIS and key partner to BG&E, has been involved in the fire design of complex and non-standard constructions to verify all kinds of timber floor, wall, and façade systems as well as connections.

To date, the team at IGNIS has completed over 1,300 fire and structural engineering designs and testing for CLT and GLT products and project specific research.

As a result, there is an extensive database of information including finite element models which were developed and used for the verification of the fire resistance up to 120 minutes (load bearing and integrity).

BIM MODELLING

BG&E have the ability to undertake the detailed coordination of modelling for fabrication.

Once the design has been fully coordinated, BG&E can take the timber structure modelling to LOD400. This includes modelling each timber element and connection, to the detail the construction methodology and order of placement.

Undertaking this level of modelling independent of a manufacturer saves the client and contractor time on program and opens procurement opportunities.

Why Work With Us?

Our timber solutions provide tangible benefits to our clients and communities.

Achieves Sustainability Benchmarks

Reduces Fit-out, Site Trades & Waste

Reduces Structural Weight

Enriches Quality of Life

Reduces Embodied Carbon

Reduces Construction Program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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.

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BG&E Part of SYSTRA