



BeCa

Buildings

- ▶ Structural Engineering
- ▶ Building Services Engineering
- ▶ Fire Engineering & Safety
- ▶ Green Buildings Engineering



Ritz Carlton Hotel // Jakarta



Suzhou Crown Hotel // Suzhou



St. Andrews Cathedral // Singapore



AUT Business School // Auckland



AEMS Bank St // London

Beca Buildings is a fast-growing international professional services practice delivering an integrated suite of building engineering consultancy services throughout the world. Our reputation for resourcefulness and progressive thinking is a result of our determination to help our client's meet their aspirations for delivery, operational performance and aesthetics.



Christchurch Women's Hospital // Christchurch

Beca Buildings: Meeting the Challenge.

The demands and expectations placed on the 21st century built environment are higher than ever before as modern societies become more aware of the impact and importance of their buildings and the spaces that surround them. The result is a global building sector facing a rapid escalation in the level of public scrutiny of building performance, safety standards, functionality and aesthetics. Delivering buildings that successfully enhance our communities and lifestyles as well as providing sustainable economic returns to their owners has become a complex and challenging process.

At Beca Buildings we believe that these challenges generate opportunities for engineering excellence and the potential for true innovation and smart thinking.

We know this because we have used our engineering skills and collective experience to help clients successfully deliver complex buildings that have not only enhanced their local environments but have also been recognised as being internationally significant examples of their kind.

Learn. Share. Adapt. Grow.

At Beca Buildings we encourage a culture of free learning where the knowledge from our projects is shared across all our staff regardless of geographic location. We are continually adapting our business to these new ways of thinking and this is what drives our international growth. The pursuit of new ideas and innovation motivates us and enables the development of our future leaders; allowing us to thrive on the global stage side by side with multinational engineering conglomerates.

Our people have helped deliver many building projects across a variety of markets and we are supported by a strong client base of public and private sector organisations, with whom we have built enduring relationships. As engineering professionals we are inspired by working alongside the world's leading international architects, building contractors and project management companies, to deliver unique and individual buildings.

A Global Citizen

Beca Buildings has a strong network of building engineers and technicians throughout Australia, China, Indonesia, New Zealand, Singapore, and the United Kingdom* who are successfully contributing to the development of the local and global built environment.

Despite our geographic separation our engineers see themselves as part of one team. Our unified culture enables us to find the most appropriate people for any

project requiring a specific set of skills, no matter where in the world they are based. This has allowed our engineers to develop an appreciation and understanding of international standards, leading to new approaches in solving local problems.

We take pride in the quality of our project delivery methodologies and management systems, operating across all our international offices; but we never forget the need for a local approach. Our regional and international branches enjoy a high level of independent development; which has led to the creation of specialised engineering centres of excellence that stem from the unique characteristics and needs of each local market.

* Trading as BCHF (UK) Ltd

Beca recognises that the quality of our work is dependent on the investment we make in our people and systems. Our people are key to our ongoing success and the success of our clients' projects. We are committed to an environment of knowledge sharing and to providing our people with the support they need to realise their potential.

The Beca Buildings Difference

Whole Building Approach

Delivering integrated building engineering is what Beca Buildings is all about. We have a proud reputation for developing highly customised, practical engineering outcomes for complex buildings. Our approach promotes integration of structural and building services concepts. On a wide variety of international building projects, our structural and services engineers have combined their skills and technical knowledge at the concept design stage to integrate the requirements of the building users and owners into a more integrated and effective "whole building" system.

Beca Building's organisational structure enables a single point of accountability for the overall team performance.

Our ability to undertake all of the engineering design work and coordinate various disciplines gives our clients the benefit of efficient solutions as well as quality documentation.

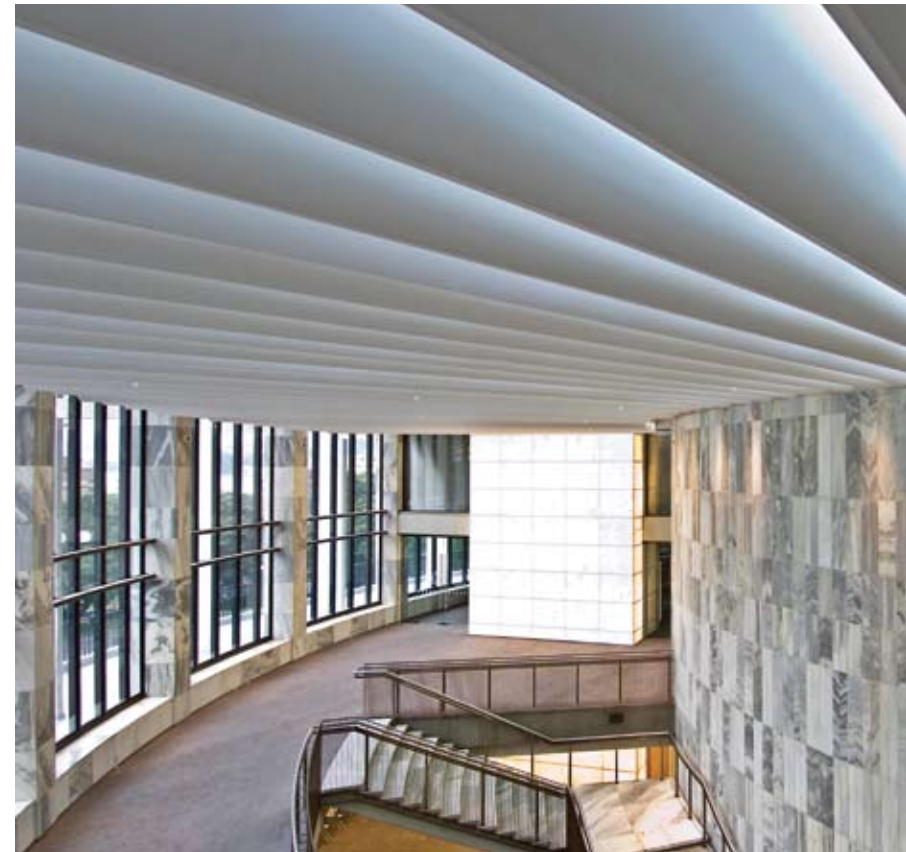
We typically evaluate materials and systems design according to ease of maintenance, cost, buildability, productivity, creativity, flexibility and future-proofing, energy and resource efficiency and overall environmental impact. But, most of all, we strive to make the building environment a productive and enriching experience for all its stakeholders.

Teamwork + Collaboration

Beca Buildings has a strong team culture based on bringing a positive attitude to all of our projects. This approach is at the core of how we operate. Building projects, and the teams involved in delivering them, are becoming increasingly complex.

We understand that a collaborative team approach is the best way to respond to the unique challenges of each project and capture the best value for our clients.

We believe that delivering smart, fully integrated engineering design means having a sound understanding of the challenges and needs of all project consultants, the client and the building users. With this in mind, we encourage and seek to foster positive teamwork and effective collaboration on all of our projects.





Bank of New Zealand - Quay Park 1 // Auckland

The challenge for structural engineers is to design cost-effective structures making efficient use of natural resources. The greatest benefits are realised through a multi-disciplinary approach, which combines the skills of the structural engineer with those of the architect, buildings services engineer and other disciplines.



Beehive Lighting // Wellington

Structural Engineering

At Beca Buildings we regard structural engineering as the fusion of physics, economics and creativity. This philosophy is woven into all aspects of our work and has earned us a reputation for providing quality and value-added services to our clients.

We pride ourselves on supporting creative architectural solutions, laying a solid foundation for the vision of our clients and other creative consultant team members. Our methodology allows for robust structural concepts to be developed, thoroughly tested, and then coordinated into the building design.

Our involvement in a number of high-rise projects in the Middle East and throughout the Pacific Rim has given us a well-rounded knowledge of design codes in these regions, leading to robust engineering outcomes for each project.

We have more than 30 years experience in computer-based analytical skills; and our capability is recognised to such an extent that our peers in the consulting industry often use our services for analysing complex structures.

Beca Buildings' structural engineers have created cost effective and innovative structural systems that limit the usual conflict between structure and services. Energy costs and the volume of materials used are integral to sustainable building design. Our engineers are provided with ongoing professional development around the area of sustainable structural design and are encouraged to incorporate these modern ideas and efficient use of natural resources in designing cost-effective structures.

Our services include design for commercial, residential, education and sports and entertainment developments. The structural team also has experience in helping to provide solutions for historic structures and giving advice on compliance with safety regulations at sports grounds.

- Foundation & Ground Retention Design
- Design of Building Superstructure in various materials
- Seismic Assessment of Existing Buildings
- Condition Assessments of Existing Buildings
- Forensic Engineering (e.g. Failure Analysis)
- Strengthening of Existing Buildings
- Repair & Rehabilitation of Existing Structures
- Earthquake Engineering
- Base Isolation
- Buildability Reviews & Construction Phasing Studies
- Procurement Advice
- Peer Reviews
- Value Engineering



Macau Tower & Entertainment Centre // Macau



Pacific Place // Jakarta



Auckland Hospital // Auckland



Our engineers work closely with building stakeholders to select and help to manage a services configuration that provides an effective balance of efficiency, controllability, reliability and performance.

Building Services

The 21st century demand for more energy and resource efficient structures has seen the multiple technologies that control the internal building environment rapidly evolve, becoming increasingly co-dependent. With the scarcity of space has also come a proliferation of mixed use buildings performing a range of different functions; each requiring a unique set of operating conditions. These advancements will continue to make choosing the optimum services system design for a building a complex process.

Beca Building's engineers have a reputation for helping our clients understand this complexity around modern services systems design. On every project we seek to deliver a platform that responds to the performance needs of the building's users and with energy and resource efficiency as a core feature.

Our experience has proven that a building's services engineering can have a large impact on the commercial viability of a development project. We believe that engaging with the building stakeholders and designers early in the design process is critical in selecting the most appropriate systems as well as minimising construction and installation issues.

Beca Buildings has provided engineering design and consultancy across many different building sectors and geographic locations. Our breadth of experience includes office buildings, stadia, hospitals, shopping malls, hotels and airports in both the new build and refurbishment environment.

Core Engineering Disciplines

- Mechanical
- Hydraulic
- Electrical
- Vertical Transportation

Specialist Services

- Lighting Design
- Automation, Security & Communications
- Data & Technology Environments
- Building Appraisals
- Commissioning Management
- Building Resilience Design and Assessment





Sky City Convention Centre & Hotel // Auckland

With Beca's diverse range of engineering backgrounds and experience, we can assess the available options and advise on the most appropriate fire engineering and protection solution for a specific application.

Fire Engineering & Protection

Beca Fire is a specialist engineering division of Beca Buildings and provides fire engineering and fire protection design to building owners and developers. We help our clients meet the regulatory requirements of ever-changing building codes and help them navigate through the array of protection systems now available.

Our fire engineering team designs systems that help reduce the effects of fire and aid people inside a structure to escape quickly and safely in the event of an incident.

Our multi-national team of fire engineers recognise the complexities and the pressure on our clients to achieve performance demands while meeting realistic cost targets. Beca Fire's involvement in the design process at an early stage can enable

a more efficient, compliant design to be reached. We have the specialist knowledge to go beyond meeting regulatory codes, to providing a customised solution for our clients.

We work closely with clients and their design teams, local authorities and fire services to help them meet the key objectives of reducing fire safety risks.

Being mindful of our clients' comfort with fire systems and policies, particularly with capital and maintenance costs, we seek to involve them throughout the design process.

Beca Building's fire engineers typically carry out reviews of the regulatory aspects of new buildings under design as well as existing facilities.



Fire Engineering

- Fire Engineering for Building Code Compliance
- Fire Compartmentation
- Modelling of Fire Loads, Fire Smoke Spread and Fire Suppression
- Egress Capacity & Aggress Path Assessment
- Consultation with Fire Service and Local Authorities
- Exit Signage
- Computational Fluid Dynamics

Fire Protection System Design & Specification

- Definition of Active Fire Protection Systems
- Sprinkler and Hydrant Systems
- Alarm Systems, Manual, Heat and Smoke
- Special Hazard Suppression
- Controlled Evacuation



Wellington International Airport // Wellington



Sky Tower // Auckland



Waterplace Condominiums // Singapore



British Telecom Offices // Sevenoaks, UK



Shanghai Changfeng Mixed Development // Shanghai



Auckland Airport // Auckland





Paragon Shopping Centre // Singapore



Conrad Resort // Bali



Papamoa Library // Bay of Plenty



AMI Stadium // Christchurch



Owen G. Glenn Building, University of Auckland Business School // Auckland



Melbourne Aquatic Centre // Melbourne

Our market segments

Airports // Aquatic Centres // Civic // Commercial Office // Condominiums // Data & Telecommunication // Education // Entertainment & Expo Centres // Health // Hotels & Resorts // Indoor Events & Recreation // Land Development // Municipal // Retail // Stadiums // Towers



Meridian Energy Building // Wellington



Republic Polytechnic // Singapore

Green Buildings

Our “green team” is a group of ecologically sustainable design (ESD) professionals that offers a specialist suite of engineering and consultancy services across a range of different building types. Our projects cover a range of geographic and climatic environments and represent a mix of new and adaptive re-use projects including stadia, education and library facilities, airports, residential, healthcare, tourism and commercial offices.

Our green buildings unit has a diverse client base that includes architects, building owners, developers, tenants and government institutions. We offer a range of advanced tools and services to these clients in developing buildings of quality, using advanced sustainable systems and design methodologies.

With an in-depth knowledge of the major global green building rating systems * our ESD professionals assess international trends and use these benchmarking tools to advise clients how these may impact on future requirements. Our integrated approach from the briefing stage through to handover is underpinned by a sound understanding of building performance and the needs of all building stakeholders.

Beca Buildings is committed to an active research programme, continuously forging networks with other green building design professionals and technology providers for the advancement of new ideas and better results. Our international office network, existing relationships and project track record positions us well to leverage our past success and become a leader in the Asia-Pacific region in helping businesses achieve their green building goals.

* BREEAM (UK), LEED (US), Greenmark (Sing), GreenStar (Aus) (NZ)

Our Green Building services include:

- Policy Development
- Green Rating Tool Assessment & Design Consultation
- Green Systems Design & Performance Analysis
- 3D Computer Modelling
- New Technologies Advice
- Computational Fluid Dynamics (CFD)
- Energy Assessments and Associated Carbon Emissions
- Energy Audits



Fraser Harding



Singapore National Library Auditorium // Singapore



South Christchurch Library & Community Centre // Christchurch

In the area of green building science there is always more to learn. We encourage debate, reward research and foster relationships with other practitioners of sustainable design. All this in pursuit of new green building breakthroughs that benefit the whole community.



Meridian Energy Building // Wellington

Beca Group Profile

Beca Buildings is part of the Beca Group, a leading international engineering and related consultancy services organisation that specialises in the design and management of projects. From prestigious landmark developments to functional and environmentally sustainable projects, Beca has extensive multi-disciplinary experience across a diverse range of industries and sectors.

We have more than 2000 employees working on international projects out of 19 offices throughout the world. Our primary hubs in the main centres of New Zealand, Australia and Singapore are supported by associated or affiliated offices in the UK, USA, Asia, Middle East, Pacific Islands and South America.

With this spread of resource and strength in diversity, Beca can draw on a rich pool of specialist knowledge and experience.

Our services include civil, structural, geotechnical, environmental, electrical, mechanical, chemical engineering and allied disciplines such as traffic and transportation, surveying, geology, quantity surveying, valuation, asset management, plant inspection, and cost control.

Beca continues to seek out new and exciting project opportunities throughout the world. We have extensive experience providing consulting services in the developing countries of the Pacific, and are increasingly involved in major developments in the fast growing cities of the Middle East and China.

With the opening of our UK office (which trades under the name BCHF (UK) Ltd) in 2004 we have already experienced significant success in European-based projects. As we forge new relationships and partnerships throughout the world, Beca is actively planning for continued success worldwide.



Australia

Melbourne
Brisbane
Sydney
Wollongong

China

Beijing
Shanghai

Indonesia

Jakarta

Myanmar

Yangon

New Zealand

Auckland
Christchurch
Dunedin
Hamilton
New Plymouth
Tauranga
Wellington

Singapore

United Arab Emirates

Dubai

United Kingdom

London
Stafford



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