



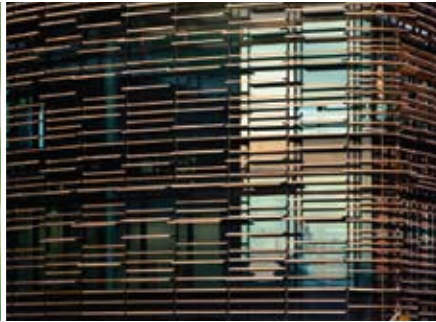
Sustainability Services

[www.beca.com](http://www.beca.com)

 **BECA**

# Beca offers a wide range of sustainability services

---



- Strategic business sustainability advice and corporate sustainability strategies
- Environmental management systems (ISO 14001) implementation and auditing
- Corporate social responsibility and sustainable business practices
- Green buildings (including GreenStar, LEED, Green Mark, BREEAM)
- Green procurement and supply chain management
- Wastewater re-use design, build and management
- Waste audit, management and minimisation
- Energy management and process optimisation
- Carbon footprinting and management
- Sustainable travel plans and strategic transport advice
- Project sustainability advice including sustainability appraisals and sustainability tool kits
- Environmental statutory and policy planning and strategic environmental assessments
- Environmental impact assessments
- Environmental compliance management
- Construction management plans
- Environmental and social due diligence/ risk management

---

Beca endeavours to continually deliver new ideas and thinking to help you achieve your sustainability goals.

We understand a sustainable organisation to be one that maintains a balance between the expectations of its stakeholders and the needs of the environment and community within which it operates.

At Beca we recognise that businesses need to future-proof themselves by walking the talk regarding sustainability, both in their internal operations and in the products and services they deliver.

Beca has developed and implemented its own internal sustainability policy and strategy, and assists clients to manage their sustainable business needs.

Beca's reputation for being resourceful and innovative is based on providing progressive advice in response to the increasing environmental demands on our clients.

We believe that for sustainability initiatives and projects to be successful they need to be individually tailored to clients' requirements. As a multi-disciplinary international consultancy Beca has the experience and skills to assist you in this field.



# Strategic sustainability advice and environmental management

---



It is now generally accepted that the way forward to a sustainable future for our businesses and community is through the integration of environmental, social, cultural and economic performance.

Beca's experience of working closely with our clients on significant projects throughout the world means we understand the commercial implications and strategic drivers of implementing sustainability initiatives and solutions, crucial when advising on a business's sustainability direction and environmental aspects.

At Beca we offer:

- Strategic business sustainability advice and corporate sustainability strategies
- Environmental policy development and review
- Corporate social responsibility (CSR) and sustainable business practices
- Green procurement and supply chain management
- Waste audit, management and minimisation advice

- Environmental management systems (ISO 14001) strategic development, implementation and internal auditing
- Carbon footprinting and management

Added value services we can provide include buildings and process engineering, architecture, planning and resource management, project management, and risk and cost management.

# EMS and Air New Zealand

---



Beca has worked with Air New Zealand to implement an environmental management framework to assist with management of the organisation's environmental performance.

This includes developing and implementing environmental management systems to the ISO14001 international standard, to measure and monitor company-wide environmental performance.

Beca also assisted Air New Zealand with their waste management programme, including waste audits, and training and advice on reduction/reuse/recycling initiatives.



# Green buildings

---

In the area of green building science there is always more to learn. At Beca we encourage debate and reward research in the pursuit of new green building breakthroughs.



Beca's green buildings team offers an integrated suite of environmentally sustainable design (ESD) services to help achieve greener solutions - including consultancy, policy development, green building systems design and performance analysis, computer modelling, passive designs, new technologies advice and commissioning services.

Our projects cover a range of geographic and climatic environments and represent a mix of new and adaptive re-use projects including stadiums, education and library facilities, airports, residential, healthcare,

tourism and commercial offices. Our diverse client base includes architects, building owners, developers, tenants and government institutions.

Our green building professionals work collaboratively across international and regional projects and have experience in applying major international rating tools.

Our growth and innovative green building thinking is based on a culture of free learning where ideas, innovation and research are shared across all levels of our business.

Beca is an active member of the New Zealand Green Building Council and the New Zealand Business Council for Sustainable Development. Beca staff have contributed to the development of the New Zealand GreenStar rating tools.

# Meridian Energy Building, Wellington

Client: Dominion Funds Ltd/Meridian Energy Ltd/Wellington Waterfront Ltd



Meridian Energy's innovative new office building on Wellington's waterfront has set new benchmarks for advanced green building design. It is the first completed building to be awarded a 5-star rating under the NZ Green Building Council GreenStar rating system for commercial buildings.

Using an ESD approach, Beca designed both the engineering services for the landmark building and the fit-out services for its tenant. The project brief requested incorporation of as many environmentally-friendly principles as possible, plus the delivery of a 'wow' factor for users, and ambitious targets of

60% less energy use and 70% less water use than comparable buildings.

With extensively glazed façades designed to maximise views, the highly transparent envelope presented many challenges in developing the services necessary to achieve a comfortable office environment, while still realising the required environmental performance targets. Beca carried out extensive 3D computer simulation analysis to inform and refine the design which adapts to suit the prevailing weather, allowing the building to be operated using natural lighting and ventilation or low

carbon energy-efficient artificial systems when ambient conditions are sub-optimal.

Innovation is demonstrated in a number of aspects, in particular, the application of active façade technology and the interaction with the building services control systems. The building is packed with green features such as rainwater recycling, solar water heating, intelligent and addressable daylight compensation lighting controls, energy recovery systems and environmentally preferable materials specifications, all designed to improve the overall environmental performance of the building.

# Bioenergy and renewable energy

---



Beca is involved in a wide range of bioenergy and renewable energy projects for clients. Services provided by Beca in this area include:

- Feasibility studies
- Economic analysis
- Modelling the processes
- Energy audits
- Reducing reliance on external energy sources



# Christchurch City Council – renewable energy model

---



Beca has developed a renewable energy model for Christchurch City Council that aims to forecast energy demand by council assets and identifies renewable sources of energy to replace fossil fuel usage for the next twenty years.

The assets considered in the model include the Christchurch Wastewater Treatment Plant, QEII Aquatic Centre, The City Art Gallery and proposed new Civic Building.

Some of the renewable fuels proposed are already available to the council in the form of biogas from digesters at the wastewater

treatment plant and landfill gas from the recently closed Burwood Landfill. Other fuels, such as wood, will need to be purchased to replace fossil fuels that are currently in use at some council facilities.

The benefits of the energy model are expected to lower energy costs and improve environmental performance across a range of council assets. The energy model will also assist the council in meeting the quadruple bottom-line requirements of the Local Government Act.

The model is now being used as a basis for developing energy infrastructure with the objective of efficiently distributing renewable fuels. The new infrastructure includes a wood waste energy centre, biogas and landfill gas treatment plants and compressor stations, and gas reticulation piping to various users. Beca is providing a full range of engineering services to the project.

# Sustainable transport

---



Beca has established a solid track record in developing sustainable transport solutions, and the related procedures and guidelines. Our transport engineers have experience in taking a multi-modal approach to transport planning, including recommending travel and transport demand management initiatives and the development of facilities required for a greater spread in mode use. This includes walking, cycling, public transport, freight transport and private transport.

In addition, we are responsible for developing the New Zealand Pedestrian Planning and Design Guideline.

Beca has developed a number of sustainable business travel plans - for Auckland Airport, for two Canterbury Health Board hospitals and for our own offices. In Christchurch, for example, nearly a third of our staff cycle to work and a further 10% take the bus.

Our transport engineers have a breadth of international experience behind them,

and we have strong working relationships with international specialists in sustainable transport solutions. In the US, we work with the Pedestrian and Bicycle Information Centre (PBIC) at the University of North Carolina, one of America's leading research and consulting centres in this area.

# Tauranga City Council – sustainable travel initiatives

---

Beca is working with both public and private sectors to encourage and guide the use of travel plans as a travel demand management initiative and as a sustainability tool.

With Beca's assistance, Tauranga City Council is successfully implementing actions for their organisation-wide travel plan that will work towards achieving the objectives set within the travel plan.

Beca has also developed the 'Workplace Travel Plan Programme' for the council, which assists other Tauranga businesses and organisations with developing travel plans for their own sites.

Beca's role is now to co-ordinate this programme which includes providing advice and guidance material, running

workshops to help organisations progress with their own travel plans and developing a local network for those involved to share initiatives.

Beca is working with public and private sectors to encourage and guide the use of travel plans as a travel demand management initiative and as a sustainability tool.

To support the travel plans initiative, Beca has also recently assisted TCC with the development, launch and promotion of a new web-based car share scheme.



# Project sustainability

---



Dealing with sustainability issues can seem a complex task and appear to be a nebulous concept to some parties.

A key challenge for businesses and organisations is to incorporate sustainability principles at project level, including identifying opportunities and objectives of a project, understanding the key sustainability indicators and developing specific measures to demonstrate progress in the ongoing sustainability of a project.

Beca's multidisciplinary team can assist businesses and organisations to make pragmatic decisions during the design and development of the project. We aim to provide solutions that are robust in the long-term by providing project sustainability services in the form of:

- Sustainability assessment toolkits
- Sustainability appraisals
- Embedding sustainability considerations and initiatives in project activities

Beca's strength lies in translating an intangible concept into a meaningful vision of sustainability that can be communicated to stakeholders. And, it goes without saying, in assisting our clients to achieve demonstrable improvements in the sustainability performance of projects.

# Melbourne Water Alliance – Sustainability Index

---



Beca has developed a Sustainability Index that is being used to provide measurements in project sustainability in the Melbourne Water Sewage Treatment and Pump Stations Alliance.

The alliance will deliver a five year capital works programme, valued at A\$250m and comprising 33 projects across Melbourne, including the two largest sewage treatment plants in Victoria.

Sustainability is a key result area for the Alliance and a project scale Sustainability Index has been created with a view to demonstrating performance in this section.

The objectives of the Sustainability Index are:

- To define sustainability as it relates to projects
- To provide a framework for integrating sustainability into projects, making sustainability tangible and actionable
- To encourage sustainable practices

The Sustainability Index consists of a series of indicators that span the triple bottom line. Projects set target performance levels, and report on these at the completion of the project using a simple five star rating scale.

To strengthen the integrity of the Sustainability Index all indicators and performance levels have been benchmarked against current practice.

# Airports and sustainability

---



Environmentally sustainable design (ESD) is now a fundamental part of any airport design process, whether airfield or landside infrastructure or terminal building design. Beca Airports has been providing ESD advice to a number of airport clients over the last few years.

Auckland Airport and Christchurch International Airport are the major gateways to New Zealand, and as such have a pivotal role in not only reducing the impacts of their own developments, but in promoting and supporting the best of clean, green New Zealand.

In January 2008, Christchurch International Airport became the first airport company in the Southern Hemisphere to attain certified carbon neutral status. Beca Airports is involved in the Integrated Terminal Project (ITP) at Christchurch, and the terminal building incorporates several ESD features.

The most unique and beneficial is the use of artesian water for a variety of uses, including direct cooling, as a heat sink for mechanical cooling, and as a heat source for heating. As part of the ITP as a whole, Beca Airports is also mindful of the REBRI waste reduction guidelines.

Beca Airports introduced Auckland Airport to the globally recognised Leadership in Energy and Environmental Design (LEED®) system and that airport is now aiming to become the first LEED certified airport development outside of North America. The development of the technologies adopted was benchmarked using an international green building rating system.



Some of the key ESD technologies incorporated by Beca Airports in the latest Pier B Building Project at Auckland Airport include:

- Photovoltaic array generating electricity
- Solar hot water
- Rainwater recovery
- Double-glazed, high performing glazing
- Daylight lighting controls

Integration of building systems with flight information system to suit arriving and departing aircraft.

Beca Airports has used recycled concrete in airfield pavement base layers over the last five years at Auckland Airport. In addition, since 2008 Beca has used around 15% Recycled Asphalt Pavement (RAP) in airfield asphalt mixes at Christchurch International Airport, this being to the best of our knowledge one of the first uses of RAP on an airfield pavement in New Zealand.

Beca Airports, working closely with Christchurch International Airport Ltd and Fulton Hogan, has recently used Coolpave technology as a trial on two taxiways. This technology reduces the amount of

fuel used in the asphalt manufacturing process by reducing mixing temperatures. It not only saves on fuel but also results in lower emissions and is safer in its handling.

Through innovative processes, design and application of international systems, Beca Airports is helping to deliver more sustainable, green gateways to New Zealand.



[sustainability@beca.com](mailto:sustainability@beca.com)

© 2009 Beca Corporate Holdings Limited. All rights reserved. "Beca" refers to one or more of the Beca group of companies, and/or joint ventures in which they participate. Please note that individual projects and or services referenced in this document have not necessarily been undertaken by the Beca entity with which you may contract. Not all services are available in all areas. This information is provided without any express or implied representation or warranty in relation to any contract which may be entered into.



[www.beca.com](http://www.beca.com)