



Feedback

Editorial

Expanding the business



Rob Ross
New Zealand



John Boers
Australia

Significant recent growth in our group has been achieved through the building of teams around key Beca people with specific Food and Beverage industry knowledge. The articles in this issue of Feedback illustrate how we have expanded our services, both in breadth and depth of resources, to meet our clients' project requirements – especially when they have business expansion as a desired outcome.

The topics covered provide some examples of project achievements but also illustrate how we can support

operational improvement. So even if you are not making a capital investment, Beca can assist by providing "fresh thinking" to achieve operating cost improvement, identifying greater value opportunities in your enterprise.

With Beca as part of your team you will be able to get your business working for you.

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Key refinery upgrade for Sugar Australia (see story on back cover)

Chilling experiences

Beca's extensive refrigeration and modelling experience can give clients a "right" chilling experience.

The provision of fresh rather than frozen foods is becoming a worldwide consumer trend and creating challenges for Beca's refrigeration engineers. Given the high capital and operating costs of modern refrigeration chilling and freezing systems, getting the design right is critical to a cost effective solution – one that maintains the food product's quality with the longest shelf life.

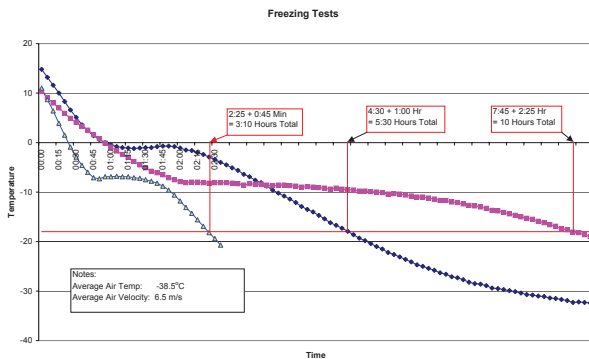
Beca's experienced staff work with clients to carefully develop the requirements for additional refrigeration plant in the preparation of preliminary design for a range of product and cooling requirements. Using finite difference analysis with computer modelling software, the dynamic heat flows in the chilling or freezing process are simulated. The resultant load profile provides the most appropriate design basis for refrigeration system modifications.

The refrigeration analysis allows more accurate plant selection, providing potential savings in both capital and operating cost. This approach provides more relevant detail in the tender documents, increasing confidence that the benefits are incorporated into the vendor's package.

As the preferred concept develops, the Beca team can work with clients to establish their operational requirements for the refrigeration systems. This can involve organising and evaluating trials for new or existing products. Beca's refrigeration expertise can assist with automated packaging systems to enable a range of products that are handled by a variable retention time tunnel (VRT).

The environmental issues associated with refrigerant selection form an important part of the complexity of the design process. Non-ammonia refrigerants have been considered by some international clients to be more acceptable in sensitive locations.

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Managing the outcome

Specialist project management skills a vital part in delivery.

Beca's project management service has recently been extended with a dedicated team focused on meeting the needs of our industrial clients (including Food & Beverage) in New Zealand and Australia. Our team includes contract, cost and project managers with industrial experience across many different processes and operating environments.

With a professional and structured approach to complex multi-disciplinary projects, the team develops a context for their clients' projects by utilizing current knowledge, and expertise in both process and strategy.

Beca Industrial Management Services provide:

Project Strategy and Feasibility Assessments

An international client recently requested Beca to support their project in Brazil by developing the project parameters and delivery strategy. This work was based on similar projects previously undertaken for this client, but customised to the local conditions in Brazil.

Project Planning and Scheduling

The use of effective project schedules can avoid costly delays. Like all 24/7 operations, multinational dairy company Fonterra needs to plan their maintenance shutdowns carefully. In conjunction with Fonterra staff, Beca generated shutdown plans for eight North Island sites. The plans optimised the way the shutdown work was scheduled, matching resources and materials to

the workplan, and progressively tracking completed tasks to achieve start-up deadlines.

Contract Management and Administration

Beca are assisting Auckland Meat Processors in the construction of a new processing facility. Along with cost estimation and managing the consent submissions at the projects' outset, Beca also successfully tendered the structural and civil works and refrigeration packages. They are now managing these contracts to complete the project.

Construction Management

Sound management of construction quality, interfaces, cost and project delivery are essential to the success of any project. Beca recently provided construction management services for a yeast production facility in Hamilton, meeting a tight commissioning timeframe and contributing to successful co-ordination of the site.

The Beca Industrial Management Services approach is to review project objectives and risks, and establish and implement specific project procedures and cost management tools at the outset. Beca then supports the projects through design, procurement and construction phases with experienced and dedicated project and cost managers to deliver the project against defined parameters. Front-end involvement in all medium to large industrial projects, ensures clients receive a combined project and cost management support service tailored to their specific sector and market requirements.



(L to R): Richard Still, Senior Electrical and Controls Engineer, with Stu Cooper, Senior Project Manager at New Zealand Foods plant.

Managing building assets

Buildings that maintain a controlled environment for industrial plant can be as important to the management of finished product quality, as the plant itself.

Leading multinational dairy company Fonterra identified a need to develop better tools and systems for managing their production building envelopes. They had previously relied on inspections by a variety of site maintenance contractors and action items raised during audits, to maintain building condition. However, this did not achieve consistent outcomes across the company, from both a budgeting and asset performance point of view. Beca developed a solution that has enabled Fonterra to proactively manage asset renewals and maintenance so that potential problems with assets could be resolved before they were identified at audit or impacted production. The project was developed in several stages that involved:

- Identification of maintenance standards
- Development of inspection criteria
- Training of Fonterra staff to undertake condition surveys

- Processing and analysis of the data for use by Fonterra.

The condition surveys covered 18 sites and generated over 18,000 line items of detailed data. Because this data was all developed to the same standard, Fonterra have been able to identify critical maintenance and renewal targets across the company which can be factored into their higher-level budgeting and management decisions.

Regular updates of this condition data will provide an information base for the lifecycle management of these assets. The financial benefits from this project should increase over time as targeted renewals reduce the need for reactive maintenance with its associated high costs and risk to production.

This asset management tool aims to provide long-term benefit to Fonterra through the optimisation of asset costs and the management of risk.

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Asset Management

Beca developed tools assist in asset management strategies.

NZ's southern operators

Beca has recently expanded its South Island Food and Beverage capabilities to better service the industry in the 'mainland'. The team, based in Christchurch, is led by Karl Oellerman, a project manager who has transferred from Beca in Australia. Karl specialises in master planning, project delivery, dairy and food processing, packaging, powder handling and international projects. Leading the food process design is Raelene Stewart, a Chartered Process Engineer who has recently returned from working on turnkey food and beverage projects in the UK.

The Food and Beverage team in Christchurch can provide process and mechanical engineers, control systems engineers and specialist project managers. The team can also draw on the services of planners, wastewater engineers, building services engineers and structural engineers from the wider Beca group, to service the needs of our Food and Beverage clients.

Three of the team members come from a dairy background, but in-house experience also includes work in brewing and wines, sauces, consumer foods and ready meals, powder handling and sugar processing. Collectively their extensive experience covers designing, managing and implementing projects from small plant improvement jobs through to Greenfield site development. Many of the section engineers have international experience, bringing fresh ideas to the design process and an

understanding of international design, and health and safety requirements.

With the ability to provide a local approach, yet with the resources of the wider Beca group to draw upon, the South Island Food and Beverage team are expanding their services to new and existing clients.

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Beca Food & Beverage, South Island

Growing our presence in the South Island market.



(L to R): Raelene Stewart, Iain Sutherland, Karl Oellermann, Peter Stent, Keith Paterson, Alex Wishart and Christy Bealing.

Working with Sugar Australia on a preliminary design for a key refinery upgrade.

Refined facilities

Beca is utilising design experience across multiple disciplines in working with Sugar Australia on a major upgrade (refined sugar drying, grading, storage and truck load-out facilities) at their Yarraville refinery in Melbourne.

Initially, Beca assisted with a study to evaluate alternative design concepts. Options included adapting an existing 130 year-old building, or demolishing the existing building and constructing a purpose built facility in its place. With the client opting for the latter, Beca documented a design basis for the Refined Sugar Upgrade. The next phase of the preliminary design has recently been completed, a detailed cost estimate is currently under way and a tender package has been prepared for detail design and construction.

Programmes of 'early works' projects were necessary to ready the site for the demolition of the old

building and construction of the new facility. One such project, the Liquid Sugar Upgrade, is currently under construction.

Existing liquid storage tanks of a significant age in the old building had to be replaced with new tanks in an adjacent area. Beca's engineers designed the system of new tanks, pumps, piping and control automation software.

A close and transparent working relationship with the client has seen Sugar Australia personnel occupy workstations in Beca's Melbourne office over the last six months to achieve a high level of collaboration.

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New faces

Bryan Hoffman



Bryan joined Beca's Hamilton Food and Beverage team as Regional Manager in August 2006. He is a tertiary qualified Mechanical Engineer with over 20 years experience (to general management level)

within the Food and Dairy industries. He has a very broad range of engineering, sales and business skills and an excellent track record in selling and successfully delivering complex projects within the mechanical, process, electrical/automation and civil engineering disciplines.

involved in strategic studies and master planning for Asian beverage companies, and is also assisting with a number of Food & Beverage projects in New Zealand.

Andrew Boulton



Andrew joined Beca in 2000 in the Sydney office as a Design Draughtsman. After spending three enjoyable years in Australia, then two years in the Auckland office, he transferred to Beca's Hamilton office. With

over ten years experience in the dairy industry, and five years experience in potable water and waste water plant layout and design, he brings a skill-set which compliments the industrial staff currently based in Hamilton.

Murray Watts



Murray has recently joined Beca as a Process Engineer after more than five years living in the USA and England. Based in the Sydney office, he is currently working under secondment to BlueScope Steel in Port Kembla (Wollongong). Murray's technical experience includes process design in the dairy industry, and industrial effluent treatment process design and commissioning.

Barry Thomas



Barry Thomas recently relocated to Beca's Hamilton office from Auckland, following a move from the UK late last year. From roots as a mechanical engineer in the chemical production industry, his experience has

developed across various other sectors including food, pharmaceutical, oil and gas, and water and wastewater. Barry is currently engaged on projects for Metrowater, New Zealand Steel, Fonterra and Auckland International Airport Ltd.

Lorraine Marais



Lorraine joined the Auckland Food & Beverage team in May last year. Her previous experience was in the petrochemical industry in South Africa where she worked for three years. Lorraine has been



New Zealand
 Australia
 Brazil
 China
 Dubai
 India
 Indonesia
 Myanmar
 New Caledonia
 Papua New Guinea
 Singapore
 United Kingdom

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