CENTRE FOR AGRIBIOSCIENCE

With a key emphasis on supporting and protecting Victoria's A$11.8 billion agricultural sector, The Centre for AgriBioscience will be one of Australia's premier biosciences facilities.

THE LONG TERM

The team at Grocon were responsible for the design, construction, commissioning and ultimate handover of the Project. As the winning bidder Plenary Research is also responsible for managing the finished building, which in this case lasts for 25 years.

CENTRE FOR AGRIBIOSCIENCE / **GROCON CONSTRUCTORS**

Left The impressive new interior of AgriBio, Centre For AgriBioscience.

In August 2009, Grocon commenced on site at La Trobe University, Bundoora to construct the AgriBio Centre as part of Plenary Research, the consortium which won the right to build the project. The AgriBio project delivers a world class agricultural research facility to boost productivity, fight diseases and make Victoria's farms even more sustainable. As a joint initiative between the Victorian Government (through the Department of Primary Industries) and La Trobe University, the AgriBio project has been delivered as a Public Private Partnership project (PPP) under the Partnerships Victoria policy. This was Grocon's first PPP project.

Project Manger, Geoff Vass and the team at Grocon were responsible for the design, construction, commissioning and ultimate handover of the Project. As the winning bidder Plenary Research is also responsible for managing the finished building, which in this case lasts for 25 years.

The most difficult areas of the project were the design and construction of PC3 glass houses, the design and construction of the CERs (Controlled Environment Rooms) and the services requirements for the PC2 and PC3 green houses. There are 78 CERs with the majority needing to work within a temperature band of -2 degrees C to +50 degrees C, and maintain a tolerance of plus or minus 0.5 of a degree. The PC3 glass house had very stringent design requirements with regard to the pressure regimes they were to meet. Grocon has its own facade design department and they used facade technology to design the PC3 glasshouse, which is located on the third level of the main building. Preliminary testing has shown that the PC3 glasshouse Grocon built is well within the minimum design parameters required. The services requirements for the glass house and green houses were also very stringent, and required a great deal of thought from the consultants and trades to develop a design that would result in satisfying the end users of the project.

As previously mentioned, Grocon has its own facade design department, and designed, procured and managed the installation of the facade for this project. In the design they included a "thermal break" system, to stop the transfer of heat from outside to inside the building. Grocon is currently in the process of patenting this design.

This was also the first laboratory design and construction Grocon has been involved in. At its peak the Project had approximately 550 people a day on site.

Grocon has an outstanding construction safety and industrial relations record in Australia due to its culture of great loyalty and productivity developed over many years. The approach to industrial relations is based on the philosophy of a fair go to all and the maintenance of a harmonious environment both on and off site. The wellbeing of people employed by or those associated with Grocon is a constant priority that leads to a safe and healthy workplace for all. Grocon has an excellent safety record, which is reflected by the numerous safety awards received.

For more information contact Grocon Constructors, 3 Albert Coates Lane Melbourne VIC 3000, phone 03 9631 8833, website: www.grocon.com.au.

Below KLM Group carefully selected the light fittings, cable ducting, power and lighting accessories and cable entry methods to ensure the effective sealing and cleaning capabilities of all surfaces within the lab areas.

KLM Group Ltd took on the role of electrical and communications contractor for the Centre For AgriBioscience project. The contract included design, documentation, procurement, implementations and issue rectification of all elements of the electrical and communication needs.

The new facility, now known as AgrBio can accommodate up to 400 staff including scientists, students and business support. AgriBio will significantly strengthen Victoria's existing reputation for plant, animal and bioscience research, protection and diagnosis. KLM Groups scope of works spanned across the large three-story complex which covers an area of 30,777sqm.

A project of this nature is inherently difficult due to the requirements of obtaining lab certification. With this in mind, KLM Group carefully selected the light fittings, cable ducting, power and lighting accessories and cable entry methods to ensure the effective sealing and cleaning capabilities of all surfaces within the lab areas. With varying types of labs throughout the facility ranging from QC2 to 3 with areas also being designated as insect areas, each lab had to be carefully assessed to ensure the required level of protection was achieved.

KLM Group used a form of combined power generation and heating/cooling called Trigeneration. The integration of a Trigeneration system within the project was innovative and challenging as it is technology that, although having been used previously, is not widely used or accepted. Trigeneration is the creation of electrical power and heat from a fuel using a turbine where a percentage of the heat byproduct is used for cooling. Heating and cooling output may operate concurrently or be interchanged based on needs and system construction. For the AgrBio project, natural gas is used to develop electricity from a gas turbine. The byproduct of this process is exhaust fumes which are used for the purpose of heating and cooling within the facility.

KLM Group launched as a dedicated electrical contracting business when founded in 1981 by brothers Greg and Peter Jinks. As the market and technology evolved so too did the business becoming widely known as a communications specialist in the late 80's and 90's.. In the 2000's KLM Group made an innovative move by being the first electrical contractor to successfully incorporate Audio Visual contracting into its capabilities and offerings which has now become one of their strongest arms of the business.

KLM Group is a service business, with a team of more than 800 employees around Australia delivering infrastructure needs across high level commissioning of total integrated electrical and communications solutions.

Their services include both design and installation of electrical installations, voice & data communications cabling, a systems integrator in; digital surveillance systems, building automation and energy audit management services including high tech professional audio visual installations.

While KLM Group has expanded it's capabilities over the years it has also gone from being a Melbourne based business to one with National presence. The company has offices in Sydney, Adelaide, Brisbane, Perth, Hobart, Launceston as well as regularly conducting work in Darwin, Townsville and surrounding areas.

For more information contact KLM Group, 71 Capel Street West Melbourne VIC 3003, phone 03 9320 3444, website: www.klmgroup.com.au.

Left Rutledge's scope of works for the centre included detailed design and delivery of integrated AV systems for various break out spaces, meeting rooms, a boardroom, a seminar suite, an atrium and a reception area.

"Australia has some of the best audio visual facilities available," says Andrew Morrice, CEO of Rutledge Engineering. "The effective operational management of these facilities relies heavily on the most up to date performance practices, specifically in the area of audio visual technology. Rutledge is about delivering certainty. We use the very best that technology has to offer and we deliver that technology using best practices. Every event, every presentation and every interaction must be seamless and successful. This philosophy has underpinned our work at the AgriBio facility, a project that we are immensely proud to be associated with."

Graeme Howlett, Senior Project Manager at Rutledge added, "We were engaged by Grocon on behalf of Plenary Research - consisting of Plenary Group, Grocon and Honeywell Limited. We have enjoyed a long and successful relationship with Grocon over the last 20+ years delivering projects such as Crown Casino, Rectangular Stadium and QV (the redevelopment of Melbourne's historic Queen Victoria Women's Hospital site).

The AgriBio Project presented some complex AV challenges given the expansive spaces. For example, the facility's stunning atrium is a particularly challenging space given the volume of glass used. Howlett went on to say "Rutledge is recognised for its expertise in the use of computer modelling to achieve optimal sound quality in challenging environments. We use complex simulations to recreate the spaces to assess speakers, positions and angles and ultimately come up with ideal design."

"Audio visual is art and science. We are essentially working in harmony with all sorts of environments (existing structures, infrastructure, lighting and acoustics) to ensure that we enhance existing built environments with world class audio visual, which is of the most part - concealed. The AgriBio project is a land mark facility bringing together the Victorian Department of Primary Industries and La Trobe University aimed at transforming agriculture and will house approximately 400 scientists delivering high end science solutions in a collaborative manner. Providing the best that AV can deliver is key to ensure maximum output and efficiency for all that will call this centre home."

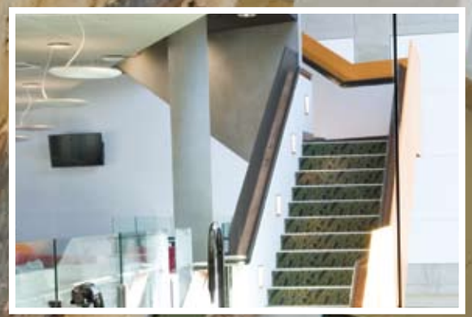
In collaboration with WSP Lincolne Scott for the audio visual design, Rutledge's scope of works for the centre included detailed design and delivery of integrated AV systems for various break out spaces, meeting rooms, a boardroom, a seminar suite (with a retractable wall – essentially turning the space into two smaller suites) an atrium and a reception area. Each space has a specific function and the AV requirements differ substantially. Howlett said "Take the reception area for instance; it consists of multiple LCD displays delivering digital signage for centre information, directions and various messages (in video or interchangeable static frames). Digital signage is in high demand as it has the ability to run various file formats and offers the advantage of delivering the latest content, giving you the flexibility of running multiple campaigns and messages reinforcing your brand and keeping your audience interested. Other AV systems include video and audio conferencing, multiple small meeting rooms with LCD displays, and electronic whiteboards throughout the facility," concludes Howlett.

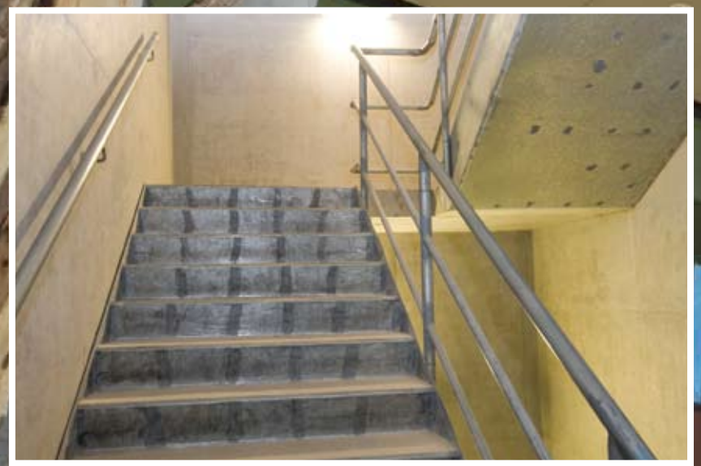
Rutledge is the leader in the Australian Audio Visual Industry, pioneering new standards for world class audio visual systems and solutions since 1985. The company is headquartered in Melbourne with offices around the country employing over 200 staff. Morrice concludes "We are renowned for our experience in the design and implementation of integrated systems backed by Rutledge Assist - our dedicated support and maintenance service for audio visual and video conferencing systems, bringing peace of mind to any Facility Manager."

For more information contact Rutledge Engineering, 199 Heidelberg Road Northcote VIC 3070, phone 03 9488 1500, website: www.rutledge.com.au

Below Bao Engineering Pty Ltd have supplied their projects to many projects throughout Australia including the Centre For AgriBioscience at La Trobe's Bundoora campus in Victoria.

Below Powerplants provided automated Irrigation, Fertigation, Rolling Benches, Fog systems, Thermal Screens, Roll-up wall systems Growth Lights and fully integrated Process Control systems.





Bao Engineering Pty Ltd provided all steel placement stair formwork and handrail systems for the Centre for AgriBioscience project at La Trobe's Bundoora campus in Victoria. Accommodating up to 400 employees, the Centre will provide a state-of-the-art platform for staff to undertake research and diagnostic studies to protect the agricultural sector in Victoria.

Bao Engineering Pty Ltd work with a product named Easystair. Easystair is a pre-fabricated, all steel, permanent formwork system which meets the demand for formwork in the fast moving construction industry.

Established in 1996, Bao Engineering Pty Ltd have been involved in many significant developments in Melbourne and have also supplied their products to projects throughout Sydney, Brisbane, Adelaide, Darwin, Perth, as well as New Zealand & Singapore.

Just some of the other ventures Bao Engineering Pty Ltd have been involved with include:

- Westfield Shopping Town Southland, Doncaster, Geelong
- Queen Victoria Building
- Freshwater Office Tower, Residential Building & Plaza
- MAB Dockland - 4 Towers
- NAB HQ, Dockland
- ANZ HQ, Dockland
- Southern Cross - Stage 1 & 2
- Northern Mill Auckland
- Victoria Point
- Westpac Bank HQ Sydney
- Commonwealth Law Court Adelaide

Bao Engineering also supplied Formdeck on the Centre for AgriBioscience project. Formdeck FD300 is a very efficient and durable permanent metal tray formwork, reinforcement and ceiling system used for suspended concrete slab construction.

Formdeck FD300 is an easy to use 300mm cover interlocking deck with deep swage pan stiffeners which provide a strong and cost effective formwork solution. It is ideal for exposed ceiling applications and can be made available in pre-painted finish to soffit.

For more information contact Bao Engineering Pty Ltd, phone 03 9793 5499, fax 03 9793 5429 email: info@bao.com.au, website: www.bao.com.au, www.formdeckconstructions.com.au

Powerplants was contracted by Grocon Constructions in 2010 to fit out the Research Greenhouses at the Centre For AgriBioscience. The Greenhouses were built by the Glasshouse Company and feature all the latest technology from Australia and Europe.

Established in 1994, Powerplants Australia is a privately owned company that has grown from strength to strength over the past 18 years to become Australia's premier Greenhouse Technology supplier. With 27 employees, Powerplants continues to provide the technical needs of growers in all corners of the country.

One such project was the Chisholm Institute of Tafe in Cranbourne, Victoria, where they built custom size greenhouses with full climate control, irrigation and fertigation systems, fog and growing systems for the purpose of education and training.

For the Centre For AgriBioscience Project, Powerplants provided automated Irrigation, Fertigation, Rolling Benches, Fog systems, Thermal Screens, Roll-up wall systems Growth Lights and fully integrated Process Control systems at various locations throughout the Centre. This project incorporates the most sophisticated Irrigation and Fertilizer Dosing System in Australia.

With the size and complexity of the project came new challenges for the Powerplants team, including setting up two fully functional glasshouses on the roof of the main building.

The complexity of the project also meant working in and around many other tradespeople to ensure a smooth process and uninterrupted workflow during the construction phase. Working three stories up on Greenhouses was a challenge in itself, getting tools and equipment up and down three floors every day.

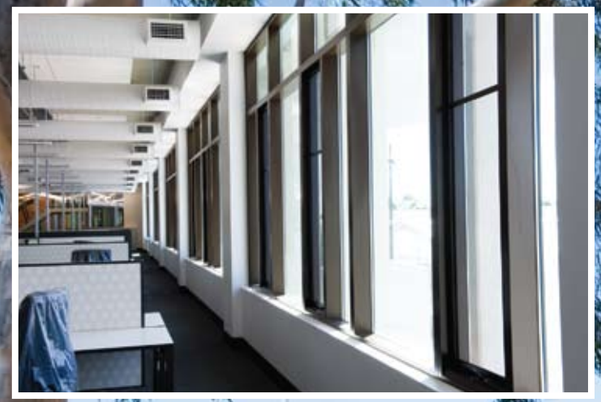
Now that the Centre For AgriBioscience Project is complete, Powerplants are working on some exciting new projects such as a 47,000 square metre glasshouse in Gippsland, Victoria. They have also recently completed stage 4 of a 200,000 square metre glasshouse facility near Armadale in NSW.

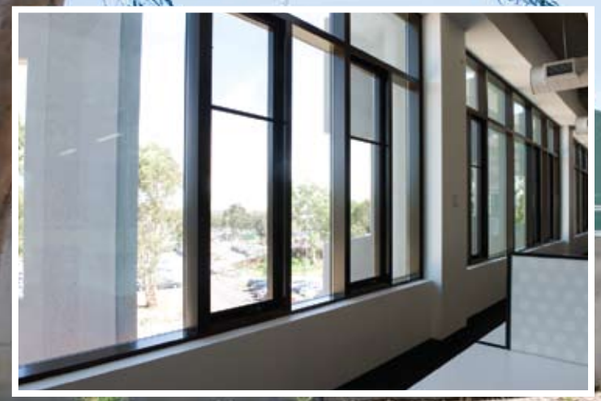
Powerplants Australia can provide all facets of modern turnkey projects to any size, and is looking forward to some exciting new projects in 2012.

For more information contact Powerplants Australia, 10 Wedgewood Road Hallam VIC 3803, phone 03 8795 7750, email: sales@powerplants.com.au, website: www.powerplants.com.au

Below Envelex Ltd provides its clients with the highest level of expertise in the curtain wall and cladding industry.

SUSTAINABLE ENGINEERING SOLUTIONS FOR AN ICONIC RESEARCH FACILITY
WSP has a rich history of delivering worldleading projects of engineering, urban, architectural and green significance.





Alan Roshan, Principal in Charge and Maciej Calski, Project Director

Envelex manufactured and supplied the high performance and energy efficient unitised strip window façade and CKD skylights for the Centre For AgriBioscience project in Victoria. The AgriBioscience is a joint initiative of the Government of Victoria, through the Department of Primary Industries, and La Trobe University.

Logistics and sequencing played an important role for Envelex on this project. With all windows manufactured in their plant, they were then packed and shipped in a numerical sequence to reduce the handling of these valuable units. The window units are floor to ceiling with a height of 3.45 metres and an average of 1.3 metres wide. The units weighed up to 300kg each and required careful transport direct to the project site. The project specifications demanded a high functioning, thermally separated façade system with high performance powder coat finishing and insulated glazing units with Low E coating. The result, provided by Envelex, was a very low w/m2K energy efficiency rating.

Envelex has been providing a manufacturing service to the building façade industry since 2002. Their 8,500m^2 plant is located at the Amata Nakorn Industrial Estate in Chonburi, Thailand. Their state of the art German CNC equipment and experienced workforce ensures a high quality and technically advanced façade system is delivered on all projects. Top of the line precision equipment has been imported from around the world and used throughout the Envelex facility for aluminium extrusion fabrication and aluminium panel forming.

Envelex Ltd provides its clients with the highest level of expertise in the curtain wall and cladding industry. The companies founding directors have a cumulative 65 years experience in the industry. Their careers have taken them to a wide range of countries with the harshest weather and environment conditions such as typhoons, earthquakes, rain and snow, thereby gaining an expansive knowledge and expertise with building facades in these environments. They go beyond the design drawings to envisage how well the system can be extruded, fabricated, assembled and glazed, transported and installed in the most efficient and timely manner. This AgriBioscience project joins a long line of successful ventures undertaken by Envelex as a preferred manufacturer and supplier of high performance façade systems to the global market.

For more information contact Envelex (Thailand) Ltd, 700/459 M.7 AmataNakorn Industrial Estate, BangnaTrad Km 57 Don Hualor, MuangChonburi 2000 Thailand, phone +6638 454 888, fax +6638 454 887, email: info@envelex.com, Paul Cannon - Director, email: cannon@envelex.com, website: www.envelex.com.

The technical demands and complexity of the project stemmed from the necessity to provide building engineering services solutions for a wide variety of spaces and to suit the requirements of the building users, the AQIS regulations and the OGTR guidelines. The range of spaces include PC2 and PC3 laboratory, specialist support facilities such as NMR and FTMS suites, internal and external PC2 and PC3 glasshouses, data centre, office zone and atrium.

The building also contains one of Australia's largest PC3/QC3 suites, including greenhouses, Controlled Environment Rooms and laboratories. One of the critical aspects of the engineering services design for these areas is to negatively pressurise the suites to provide protection for scientists and allow them to safely carry out industry-saving research on hazardous microorganisms as well as to protect the population and environment outside the laboratory.

"The successful delivery of this highly technical and services intense project required close and continuous collaboration with the project team, including Lyon Architects, Grocon and their contractors, as well as various stakeholders" said Maciej Calski, WSP's Director and Project Leader.

The AgrioBio facility has achieved a 5 Star Green Star design rating and is in the process of obtaining a 5 Star Green Star Education As-built rating.

WSP has a rich history of delivering worldleading projects of engineering, urban, architectural and green significance. This tradition of innovation has seen their projects set benchmarks, proving the business case for sustainable design, as WSP continue to exceed industry expectations.

"We believe the key to continual progress is to integrate innovative environmental thinking, engineering design excellence and full awareness of commercial benefits of engineering solutions/initiatives. This approach has been instrumental in shaping the industry to move towards a greener and commercially viable built environment" - Alan Roshan.

For more information contact WSP, Level 5, Midtown Tower, 246 Bourke Street Melbourne VIC 3000, phone 03 8663 7880.

AgriBio, Centre For AgriBioscience, is a $288 million worldclass centre for agricultural biosciences research and development at La Trobe University's Bundoora Campus being delivered by the Victorian Government, La Trobe University and Plenary Research Consortium as a Public Private Partnership. As described by the Department of Primary Industries "AgriBio will be one of Australia's premier biosciences facilities, with a key emphasis on supporting and protecting Victoria's A$10 billion agricultural sector by focusing on cutting edge research to improve productivity, fight disease and reduce environmental impact".

Global engineering firm WSP provided an integrated service for the Centre for AgriBioscience project. The building engineering services provided by WSP include mechanical, laboratory gases, electrical, communication, audio visual, fire protection, hydraulics, vertical transportation and environmental services.

"Our design of building engineering services adopted for this technically complex project focused on the solutions that incorporate the latest technologies and design principles. Flexibility to reconfigure and expand the facility to suit the changing needs of ever evolving science has also been a key design consideration" - Alan Roshan, WSP's Principal and Project Director.

PC3 Glasshouse

Below The Glasshouse Company supplied and installed the glasshouses, poly houses and screen houses on the Centre For AgriBioscience project.

Below Thorn provided lighting solutions for the car parks, loading docks, animal pens, green houses, area and landscape, poles, general labs, PC3 labs (pressurised) offices and circulations spaces.

The Glasshouse Company Pty Ltd

Manufacturers & Suppliers Of Horticultural Structures

For more than 25 years, The Glasshouse Company Pty Ltd has been custom designing greenhouse facilities for various government departments and nurseries as well as commercial and residential projects. Working on the Centre For AgriBioscience project, The Glasshouse Company supplied and installed the glasshouses, poly houses and screen houses. Having an open line of communication between all parties ensured that the project was delivered to a world class standard for Australian research facilities.

The Glasshouse Company, through its excellent track record and genuine referrals, has completed some of the highest standard structures, including research facilities at Knoxfield, Tatura, Hamilton and Horsham along with school facilities at University of South Australia, Mildura, Alice Springs and Newcastle to name a few.

Their experience in all facets of the industry enables government departments to utilize this knowledge when forming the parameters of their future project.

For more information contact The Glasshouse Company Pty Ltd, 244 Eramosa Road West Moorooduc VIC 3933, phone 03 5978 8774, fax 03 5978 8288 email: admin@ghco.com.au, website: www.ghco.com.au

Thorn Lighting, part of the Zumbotel Group, is a highly recognised global brand for professional indoor, outdoor and industrial lighting. Thorn's mission is to improve quality of life by providing the best-quality, energy-efficient lighting solutions. To deliver tailored solutions for the Australian market Thorn has established a nationwide network of State Branches and Sales Offices, giving them presence in every State within Australia. Furthermore every State Branch is equipped with a warehouse to ensure we can meet the needs of each market quickly and effectively. They also have a manufacturing facility in Sydney that allows them to produce a range of products to meet the specific requirements of the Australian market.

Thorn is the sole supplier of luminaires to the Centre For AgriBioscience project. They worked closely with the architects, electrical engineers, builder and trades to deliver a lighting solution that met the unique and challenging requirements of the high tech Greenstar 5 rated research facilities. A key to achieving the Greenstar 5 rating was Thorn's ability to supply energy efficient luminaires; most with DSI and DALI ballasts which enabled for them to be linked to the buildings control system. Thorn Lighting also designed a new sealed fitting to handle extreme temperature, a testament to their local manufacturing capabilities. With all projects, Thorn, ensures that the lighting solution is designed in line with their PEC philosophy. PEC - Performance, Efficiency and Comfort - is the dynamic, results-orientated programme that underpins Thorn's approach to lighting product and scheme design.

Performance - provide the best visual effectiveness
Efficiency -minimise the use of energy, CO2 emissions and waste
Comfort - give people satisfaction and stimulation

By acting as an analytical design tool the PEC programme drives designs for efficient and sustainable solutions without sacrificing the quality of lighting. PEC enables Thorn to use standard lighting components to create tailor-made and environmentally sensitive lighting that addresses the unique needs of every site, user and application. The programme is based on the principle that Performance, Efficiency and Comfort determine the effectiveness of lighting, its impact on the people using it, and its impact on the natural environment. Because no two projects and locations are the same, each requires a different balance between the three components. For the Centre for AgriBioscience project Thorn provided lighting solutions for the car parks, loading docks, animal pens, green houses, area and landscape, poles, general labs, PC3 labs (pressurised) offices and circulations spaces.

For more information contact Thorn Lighting, phone 1300 139 965, website: www.thornlighting.com.au

Below Each façade of AgriBio has been configured to generate maximum window area. The result is natural daylight at every level across both laboratory and office space.

HealthKare Intelligence welcomed the opportunity to be part of the Centre For AgriBioscience project in Victoria, one of Australia's premier biosciences facilities. Engaged as the specialist equipment consultant in October 2009, HealthKare Intelligence was responsible for the technical design integration and procurement of the specialist Biosciences equipment. The multidisciplinary team featured Laboratory, Biomedical & Contract Negotiation Specialists. The HealthKare Intelligence team was involved in 3 keys phases, the first of which included analysing customer requirements, liaising with stakeholders, undertaking throughput analysis and identifying fit for purpose solutions. During the second phase, HealthKare Intelligence provided detailed equipment documentation for state submission and provided technical information for architectural and services integration. The final phase involved equipment procurement and tender negotiations. HealthKare Intelligence offers a foundation with over 45 years of practical experience in Healthcare and Biosciences. Their staff are leaders in their chosen fields and are committed to achieving the highest standards. HealthKare Intelligence has supported some of Australia's largest and most complex Bioscience and Healthcare projects throughout the bid and the delivery phases. Their services capture the whole continuum of the FF&E journey from the original equipment wish list to the final procurement, installation, testing and commissioning phases. This complete spectrum of experience and competency provides an exceptional service to their clients.

Below main *Steriliser* ***Left*** *Rack washer* ***Right*** *Automated bottle washer*

For more information contact HealthKare Intelligence (HKI), Mrs Josephine Maprock - Director, phone 0431 157 322, email: jmaprock@hki.net.au, website: www.hki.net.au

The Centre for AgriBioscience has been designed over 30,777sqm, including three stories, a basement and external buildings. The Centre consists of a laboratory and office building plus external facilities such as a large glasshouse and polyhouse complex. The facility will deliver a high degree of flexibility across the laboratory areas to enable adaptation to the everchanging scientific needs.

Kuttner Collins is a specialist consultancy business whose primary focus was the accreditation of the Latrobe University's new facility. Due to the type of work to be conducted at the Center for AgriBioscience, both the Office of Gene Technology Regulator (OGTR) and DAFF Biosecurity were involved.

The team at Kuttner Collins have been involved in the accreditation process and in building services engineering for many substantial projects across different industries. They have been engaged in the design process for hospitals, schools, laboratories and more, for over 50 years.

For more information contact Kuttner Collins, PO Box 538 North Sydney NSW 2059, phone 02 9929 7411, email: kuttner.collins@kcpengineers.com.au

Centre For AgriBioscience, VIC