

# SOARING TO SUCCESS AT AMBERLEY

When it comes to project management, it doesn't get much more complex than the task Thinc Projects has undertaken for the Amberley Redevelopment Stage Three, coordinating and managing six separate contractors under six separate contracts and eight consultants under eight separate contracts, on a staged process which began in May 2008 and is due to conclude in Autumn 2011.

"It is unique working with Defence as a client, and it presents plenty of unique challenges," said Thinc Project Manager and Contracts Manager, Charles Stewart.

"This project is rewarding, because we get to construct such a variety of facilities and get to work with such a wide variety of contractors, consultants and subcontractors. There are a number of separate elements and stages, with a number of handovers.

"There has been a real shift in Defence projects to achieving ESD outcomes which are beyond the BCA requirements; to achieve industry best practice. Defence also require low maintenance facilities, and the design aspect has focused on that. "There has been some consolidation of facilities to achieve ESD goals."

Thinc have had 24 staff working on the project since design commenced in 2006. Currently, up to nine Thinc staff are onsite, including the Project Director, four Project Managers and two Assistant Project Managers. ACONEX has been used to manage all relevant project communications including formal correspondence, uploading and downloading of documentation, RFIs and variations.

All contractors and subcontractors on the project have been required to demonstrate National Code Compliance, submitting Quality, Site Management, EMP and OHSM plans for review and approval prior to commencement on site.

"It's an operating base, we have to work in with the other users on site, and are working alongside other projects – at one stage there was \$1billion worth of construction work going on," said Charles.

"Some of the brownfields and refurbishments were difficult, as the documentation of existing infrastructure was not particularly accurate; as the base is 60-70 years old, it is difficult to provide documentation and guarantee its accuracy."



# RAAF AMBERLEY REDEVELOPMENT

There are six packages of construction involved in this stage of Amberley's redevelopment.

Package One, constructed by Abigroup, involved seven LIA buildings accommodating 32 single rooms and a Mess Building comprised of three dining halls served from one central kitchen, capable of catering for 850 people per sitting. This \$55million package commenced in May 2008 and was completed in August 2009.

Construction of Package Two was undertaken by Thomas & Coffey. Their brief included a Rugby Oval with 400m Athletic track and Change Rooms, AFL Oval, 50m Swimming Pool, Multi Purpose Hall, Squash Courts, Tennis Courts, Beach Volleyball Courts, Weights Hall, Cardio Room, Spinning Room, Boxercise Room, Cricket Nets, Climbing Wall and Run, Dodge, Jump Course. Also a four million litre underground water storage for harvested rainwater. Work commenced on site in May 2008 and was completed November 2009.

Laing O'Rourke constructed Package Three: the Headquarter Combat Support Group, Air Transport Health Squadron, Base Information Systems Centre, Base Command Post and Security Police. Work commenced on site in June 2008 and was completed early 2011.

Package Four, undertaken by Boulderstone, involved the technically exacting Mechanical Equipment Operations and Maintenance Section (MEOMS), Aviation Fuels, Liquid Dry Breathing Oxygen Lab, and Military Working Dogs facility. Work commenced on site in August 2008 and was completed October 2009.

Broad Construction were responsible for Package Five, the Security and Fire Training School, comprising Training

Building, Physical Training Building, Auditorium, Logistics Warehouse and refurbishment of existing SFS HQ Building and Ground Defence Training Facility. Work commenced on site in January 2009 and was completed February 2010.

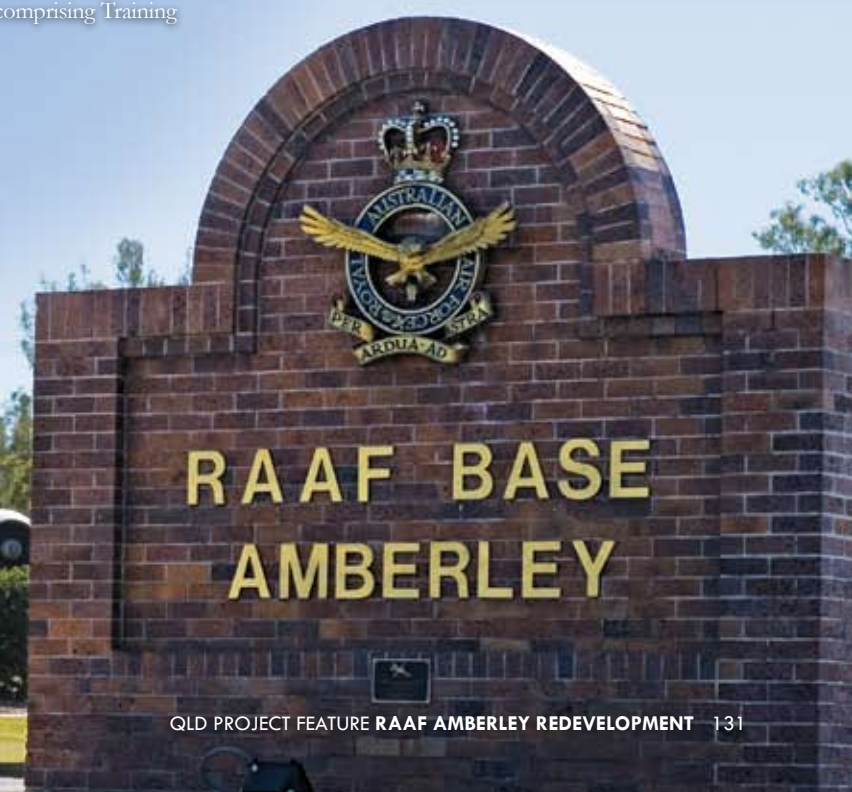
Watpac is currently on site constructing Package Six, the Passive Defence Augmentation and Demolition, this entails constructing a new Main Gate and Pass Office, significant road works, new high security fence line, also demolition of existing facilities including redundant fuel farm.

Rifle Flights construction by John Holland has just commenced. The project comprises a new Air Field Defence Squadron Headquarter building, Armoury and Security Communications building, Ready Deployment Store, Rifle Flight seminar and training facilities.

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**PROJECT MANAGER :** Thinc Projects  
**PROJECT END VALUE :** \$331.5 Million  
**COMPLETION :** Mid 2011  
**ARCHITECTS :** Conrad Gargett and Hassell





# SOLVING MULTIPLE PUZZLES WITH TECHNICAL DESIGN SOLUTIONS

## What was S2F's role?

Resolving challenges is what design consultants do – in the case of the Amberley Redevelopment Stage Three project, multi-disciplinary architectural and engineering consulting group S2F were engaged to deliver design and construction services for the mechanical, electrical, fire and acoustic services across the entire project – six packages of work, interfacing with six separate head contractors working with multiple architects under a single Project Manager/Contract Administrator.

## What was built?

Since the initial award of contract in November 2006, up to 30 S2F staff have worked on the project, with involvement ongoing until 2011. From the unique Liquid Dry Breathing Oxygen facility through to a veterinary clinic, hospital, dental and health services facility, living-in accommodation, combined mess facility, physical fitness centre, maintenance workshops, training buildings and fuel services facility, S2F provided tailored technical design solutions.

“It is the diversity of the project that demonstrates the complexity of the task,” commented S2F Delivery Phase Project Manager, Mike Neill.

“We worked on 13 different facilities, ranging from a single building to six or seven; in total, 39 individual buildings and structures.”

## How did S2F solve the puzzles?

S2F's David James undertook overall project management of the S2F team which resolved challenges posed by the site, the diverse nature of the facilities and the Client's specific requirements.

A significant ESD emphasis in the design process, with Defence giving a directive of 20 percent energy saving over the BCA compliance, was one specific challenge for the team.

“To meet this target, for the air conditioning for example, we introduced air to air heat exchangers in some facilities and used economy cycle control to conserve energy where beneficial. Defence have developed an ESD manual and are rigorous with examining ideas – for every air conditioning system we had to provide an evaluation of the ESD aspect and the value for money, and go through a process of documenting and evaluating options, with whole-of-life costing involved,” he explained.

## What were the biggest challenges?

Security was also an important aspect in design, particularly in relation to the security of information.

Another unique aspect of the project was evident in such areas as the dental facility, with the under-floor services and drains for the dental chairs proving a real challenge within the structure of the floor slab in dealing with natural movement in the soil.

Maintenance was also a major consideration, with Defence requiring high quality, low maintenance products, specified to relevant performance standards.

Other aspects requiring innovative thinking included the control systems. S2F's system designs included BMS systems for all new buildings, which had to integrate with existing controls in other facilities and link together to a central terminal.

A NEXUS central emergency lighting system has been used which allows the testing of the entire facility's emergency lighting systems from a central control room.

## How long did it take to design?

S2F and other consultants spent one year in briefing and design.

S2F also contributed to an infrastructure upgrade, with SCADA systems providing intensive energy monitoring for gas, electrical supply and water usage. New substations were installed, which were required to be seamlessly integrated with the central systems, resulting in some aspects of the high voltage power mains requiring re-engineering.

Amberley's main fire alarm central system and central fire control system also required upgrading, with early warning smoke detection systems installed for critical assets and flame detection systems provided for specialist operations areas. Overall, building design and engineering has focused on ensuring buildings are as fire-proof as possible.

“We worked collaboratively with the architect so that floor areas, configuration and structures are designed so that sprinkler systems are not needed; we also worked closely with the specifier and certifier to meet or better compliance expectations,” explained Mike Neill.

## How long will it take to build?

Construction has been ongoing for two and a half years, with approximately six months to go until completion.


“This is a very holistic project - despite the diversity of packages, it is still one project. In terms of breadth of scope, it is the largest and most diverse Defence project we have undertaken.”

S2F have been providing design and engineering solutions to controlled environment industries for over ten years, focussed on projects in pharmaceutical and high technology manufacturing, research and development laboratories and the commercial, healthcare and Defence sectors. The company has offices in Sydney, Melbourne, Brisbane and Shanghai, and employs approximately 250 staff.

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## ALL SKILL, NO LUCK INVOLVED IN A JOB WELL DONE

Shifting around 300,000m<sup>3</sup> of earth on a works area of a quarter of a million square metres make Shamrock's Civil's contribution to the Amberley Stage Three redevelopment an achievement on a grand scale. The Queensland-based civil construction company undertook Civil works for the 1ATHS Hospital, the HQ, MEOMS, LDBO facility and Aviation Fuels as part of Stage 3 Package 3 Base Redevelopment as well as other projects including; the C17 infrastructure, C17 simulator, MRTT Facilities relocation, Airfield light maintenance and sewerage pump stations.

In addition, Shamrock's expertise in the Management, treatment and removal of contaminated soils and site remediation was called on, and they undertook contaminants removals across the entire Amberley Base site in accordance with the applicable environmental regulations. The company also installed an estimated 10km of underground services. Up to 30 Shamrock staff and their own fleet of heavy equipment worked steadily on the project since 2007, building on the successes of regular short term jobs for the Base since 2002.

"A major challenge was the logistical planning required when working inside Australia's largest Air Force base. Shamrock ensured the effective coordination of material and service deliveries were at all times compliant with the base security regulations, so as to minimise disruption at the gate," explained Shamrock Civil Construction Manager, Brendan Kealy.

"Another challenge was the presence of undocumented in ground services throughout the Base. To control the high risk associated with excavating around these services, Shamrock made strategic

investments in non-destructive excavation equipment, and advanced our safe excavation procedures through extensive consultation with our workforce. It was through this consultative process that the phrase "No Permit, No Spotter, No Dig" was coined."

"All excavated soils were redeployed on site, topsoil was conditioned for reuse, and rock was used for scour protection as erosion control. Removed concrete was crushed and used on the access roads and any trees removed were mulched and used in the landscaping works for erosions and sediment control."

Established in 1994, Shamrock Civil have been involved in an extensive number of high value projects, across the commercial, residential, retail, infrastructure and recreational sectors. Servicing the South East of Queensland and Northern New South Wales, their capabilities include Bulk Earthworks, Site Clearing, Demolition, in ground service installation, Roadworks and Bridgeworks. Shamrock's successful growth over the past 16 years can be attributed to its dedication to the continuous improvement and implementation of its quality, safety and environmental management systems. Key to this has been Shamrock's commitment to continuously invest in the professional development and training of its personnel.

Shamrock's Business Management System includes a Quality System certified to ISO 9001:2008, a Safety System compliant with AS4801 and currently in the process of certification, and an Environmental System developed under the guidance of ISO 14001. The effectiveness of Shamrock's integrated management system was demonstrated on the Amberley project being injury



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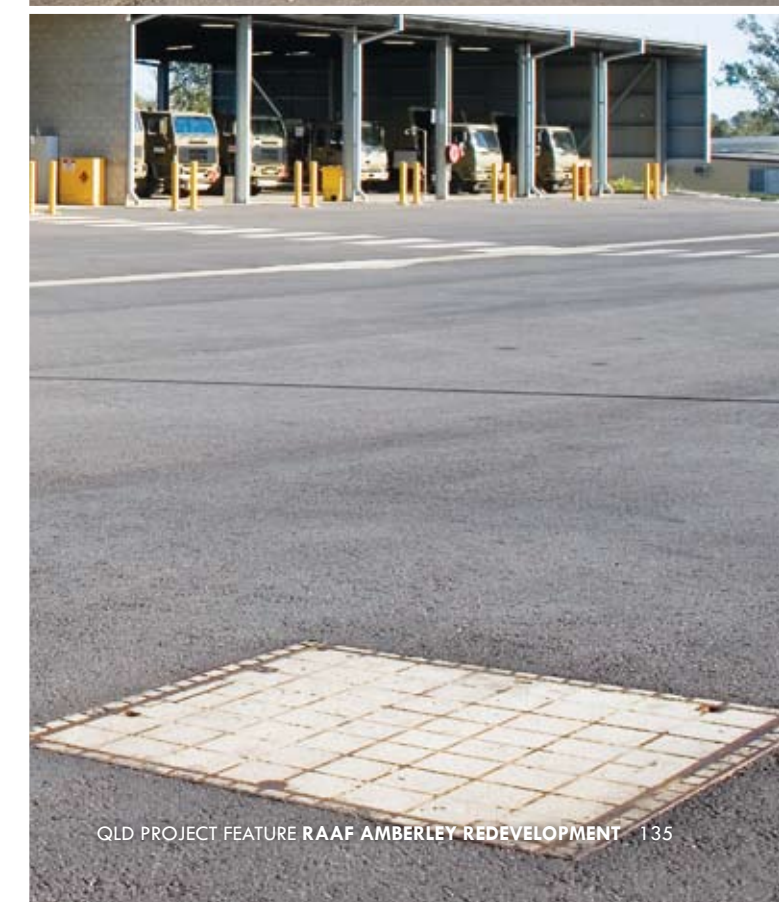
free, completed on time, to budget and to Defence's exacting quality requirements.

Shamrock has over 130 staff including project managers, engineers, estimators, site supervisors, plant operators, construction workers and trainees, in addition to four qualified diesel fitters who maintain the extensive fleet of civil construction plant and machinery. Their fleet includes earthmoving machinery enabled with GPS machine control for extreme precision on the ground, some of which were used for earthworks at Amberley.

Shamrock Civil's previous and existing clients include some of Australia's most reputable contractors such as John Holland, Baulderstone, Laing O'Rourke, Bovis Lend Lease, Westfield Design & Construction, Broad, Watpac, Abigroup and Thiess. The company has also successfully completed numerous projects for Government and Federal State departments such as Brisbane City Council, Brisbane Airport Corporation and Logan City Council and as a result has received a 4 year contract for road and drainage works.

"We are always adding to our fleet of machines, and improving our internal management," said Brendan Kealy.

"With the extra certification in safety in progress, we have taken on extra staff and introduced extra training. Shamrock is committed to the ongoing cultivation of our workforce with regular training, and many are long term employees. Having our own plant operators and our own workshop for maintenance allows us to really develop the safety culture and the quality culture."





# AMBERLEY'S GORGEOUS CARBON STORE

There's something rather special about the Physical Fitness Centre at Amberley RAAF Base – 130 years of experience with wood have gone into the timber rafters, skylights beams and roof purlins supplied by Hyne Timber. This also, incidentally, turns the facility into a carbon store.

Hyne specialise in timber and timber engineered products, using wood from sustainable sources. All the materials used at Amberley have AFS certification, and being timber have the long-term benefit of being an ideal low maintenance, long lasting option for harsh corrosive environments such as this project.

Hyne were involved with the Amberley project from preliminary design and engineering stages. To achieve the 20.4m length needed for the 38 main rafters used throughout the building, Hyne designed and fabricated a hidden epoxy splice joint to achieve the necessary length.

Other timber products supplied for the project totalled 56 skylight beams in 525mm X 83mm and 755mm X 83mm sizes, and 424 roof purlins measuring 250mm X 85mm. Hynebeam, HB17C, select grade, LOSP H3 treated and Pine beam timbers were used to fabricate the order at Hyne Glulam Facility in Maryborough, South East Queensland. All the products were manufactured in accordance AS/NZ 1328.1 and Accredited Quality Management Systems ISO 9001 – 2008.

Using the Hynebeam for the main rafter roof members kept the weight down by 25 percent compared to steel roof beams, supplying both structural strength and also a pleasing aesthetic which is in keeping with the rest of the Physical Fitness Centre's design and fitout.

The laminated timber roof beams were supplied to suit the Thomas Coffey building program for Package Two. Delivery involved nine extendable semi-trailer loads over an eight week period, with installation by the contractor taking place starting at the Gymnasium section and finishing over the pool section of the structure.

With more corporate growth rings than most, and continual research and development into design and fabrication methods, Hyne's capabilities to achieve custom-made solutions, such as the large section long span main rafters at Amberley, are second to none.

Currently, Hyne is fabricating orders for another Department of Defence project, ELF Kapooka in New South Wales. This project will be supplied with Hynebeam HB17C column and rafter portals including Engineered epoxy connections, and LGL purlins and girts.

North Tambourine Church is also on the receiving end of Hyne's timber expertise, with Hynebeam HB17S column and rafter portals, including Engineered bolted connections, and LVL purlins being used in the structure.

The excellence of their products has been recognised in award-winning projects including South Cairns Christian Fellowship Church, Cape York Country Club Lake Tinaroo, Hatton Vale Cathedral, Cheese Factory Mount Tamborine and Mingara Gymnasium.

Hyne leads the way in Australian manufactured timber products, specialising in supplying the building industry with engineered, structural and decorative softwood products sourced from sustainably managed plantation sources in Queensland, New South Wales and Victoria. These forests are independently certified for compliance with the Australian Forest Standard AS4708(Int)-2003 (AFS) under Australian Forest Certification Scheme. The AFS has mutual recognition by the Programme for the Endorsement of Forest Certification Scheme (PEFC), the world's largest forest certification organisation.

Research has shown that use of timber products results in a much smaller carbon footprint than energy intensive building materials such as concrete, masonry, steel and aluminium. Every beam also represents carbon stored for the life of the timber – a lifespan generally greater than the functional design life of most new buildings.

Hyne products make a clear contribution to a project's Green Star points; in January 2010 the Green Building Council of Australia (GBCA) formally recognised products meeting the AFS/PEFC standards as being equal in Green credentials to those with FSC Certification. Hyne worked closely with colleagues in the timber products industry and the Australian Forestry Scheme to bring this about. Their Environmentally Certified forest products are sourced from Plantation Forests, managed to Australian Forest Standard AS4708 (Int) 2003.

In Hyne's products, the natural, time-tested qualities of timber both look good, and perform exceptionally, in every structural application.

Hyne currently has Chain of Custody (CoC) Product Certification for Hyne Araucaria from the Mary Valley, Hyne Frame produced at Tuan and Tumbarumba and Hyne Glulam and Hyne I-Beam. This Chain of Custody Certification guarantees the products have been sourced from softwood plantation forests that comply with the Australian Forest Standard (AFS/PEFC).

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## EXCELLENCE WITH DATA COMPLEXITY

In undertaking the detailed survey work for the Amberley RAAF Base c-17 Heavy Lift, Rifle Flights and 21st Construction Squadron facilities, Landsurv surmounted multiple challenges including technical equipment issues, multiple clients, a diversity of tasks and security restrictions. Initially contracted by John Holland for the set out works, Landsurv also undertook the setout and “As Constructed” survey work for 20 other companies for facilities, roads, services, airstrips and aprons, carparks and access routes. All the information was then compiled in a digital form compatible with the Department of Defence Spatial Data Management Plan, known as the Graphical Facilities Information System (GFIS).

Landsurv spent several years on site at Amberley, with up to six survey crews on the ground, including both conventional field crews and robotic one man field crews including GPS. All surveys had to be related to MGA planer co-ordinates and be on Australian Height Datum (AHD).

“The project was one of the largest undertaken by Landsurv and involved the establishment of a Regional Office at Ipswich which worked in conjunction with our site office. Staff were moved from our Sydney office at times to assist with peak survey requirementstimes,” said Landsurv Director, Barrie Green.

“The accuracies Landsurv were required to achieve were plus or minus 5mm horizontally and vertically for building setout and 50mm for GFIS using a minimum of three control points.”

All Landsurv staff attending the Amberley site required high-level security clearance, and specific permission for escorted entry to

the airfield zone. Landsurv vehicles required special equipment and identification to comply with Department of Defence requirements.

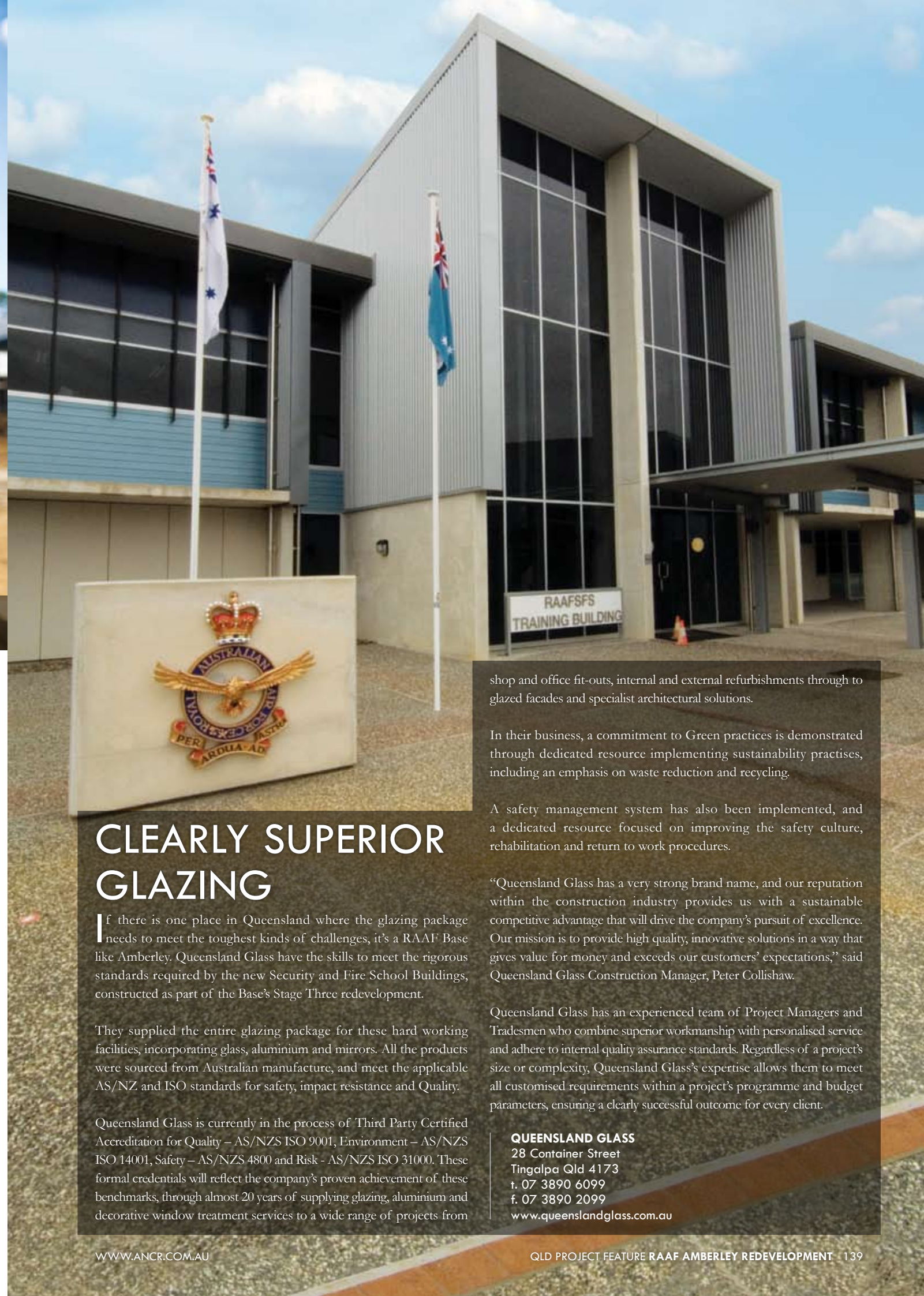
Landsurv has also worked on the upgrade of the Canungra Army Base, undertaking building and services setout and producing the GFIS for the entire site. Currently, Landsurv are at work on the billion dollar upgrade of the facilities at Enoggera Army Base.

Their accuracy, innovativeness and excellence has been recognized with an Institute of Surveyors Award for the upgrade of the Condong Cogeneration Plant. Their work at Amberley has been entered into the NSW Excellence in Surveying and Spatial Information Awards 2010 in the infrastructure and construction category.

Landsurv undertake major survey operations, such as 4500 lot subdivisions; the upgrade of the Brunswick Heads, Mullumbimby, Ocean Shores Sewerage Augmentation Scheme; and a floor level study of 3000 homes in Ballina to assist Council with climate change requirements.

Landsurv have offices in Tweed Heads, Murwillumbah and Ipswich, an associated office in Sydney and incorporates offices operating in the Tweed/Gold Coast and Lismore/Ballina areas which have been operational for 35 and 60 years respectively.

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## CLEARLY SUPERIOR GLAZING

If there is one place in Queensland where the glazing package needs to meet the toughest kinds of challenges, it's a RAAF Base like Amberley. Queensland Glass have the skills to meet the rigorous standards required by the new Security and Fire School Buildings, constructed as part of the Base's Stage Three redevelopment.

They supplied the entire glazing package for these hard working facilities, incorporating glass, aluminium and mirrors. All the products were sourced from Australian manufacture, and meet the applicable AS/NZ and ISO standards for safety, impact resistance and Quality.

Queensland Glass is currently in the process of Third Party Certified Accreditation for Quality – AS/NZS ISO 9001, Environment – AS/NZS ISO 14001, Safety – AS/NZS 4800 and Risk - AS/NZS ISO 31000. These formal credentials will reflect the company's proven achievement of these benchmarks, through almost 20 years of supplying glazing, aluminium and decorative window treatment services to a wide range of projects from

shop and office fit-outs, internal and external refurbishments through to glazed facades and specialist architectural solutions.

In their business, a commitment to Green practices is demonstrated through dedicated resource implementing sustainability practises, including an emphasis on waste reduction and recycling.

A safety management system has also been implemented, and a dedicated resource focused on improving the safety culture, rehabilitation and return to work procedures.

“Queensland Glass has a very strong brand name, and our reputation within the construction industry provides us with a sustainable competitive advantage that will drive the company's pursuit of excellence. Our mission is to provide high quality, innovative solutions in a way that gives value for money and exceeds our customers' expectations,” said Queensland Glass Construction Manager, Peter Collishaw.

Queensland Glass has an experienced team of Project Managers and Tradesmen who combine superior workmanship with personalised service and adhere to internal quality assurance standards. Regardless of a project's size or complexity, Queensland Glass's expertise allows them to meet all customised requirements within a project's programme and budget parameters, ensuring a clearly successful outcome for every client.

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# OPEN THE DOORS OF SUCCESS



Doors at some of the Amberley RAAF Base facilities have to meet extremely precise operational specifications – they also need to meet high standards for durability, low maintenance and above all, be of certified quality materials and manufacture. Airport Doors have over half a century of experience in providing products which can meet and exceed all of these requirements, and have supplied the Stage Three redevelopment with over a million dollars worth of their Australian-manufactured fold up doors, large gates and roller shutters.

The facilities that Airport Doors have supplied products for include the MEOMS, FEMS, Working Dogs, Security and Fire Training School, Rifle Flights and the 21st Construction Squadron. This project is one of many RAAF bases Australia-wide Airport Doors have custom-designed products for.

“We are continually specified on RAAF Bases, and builders know the quality, organisational skills and expertise we have,” said Airport Doors Queensland Project Manager, Damian Vyanos.

“The challenge with Amberley Stage Three was the sheer volume of the job, and the amount of variables. There was considerable liaising with multiple stakeholders and many levels of approval to go through for each order.

“Airport Doors are continually succeeding against bigger and bigger challenges, having also recently completed Christmas Island Detention

Centre, and the only four leaf counterweight fold up doors in Australia – 16 metres high – at Patrick’s Berth 10 Autostrad® Terminal. We are also in progress on a multi-million dollar order with Baulderstone in South Australia for 200 fold up doors and roller shutters.”

Leightons Contracting has also put in an order for Airport Doors products for their project at RAAF Tindal in the Northern Territory.

Airport Doors are able to design and manufacture for all high-security or high-end applications, using an extensive range of materials including glazing. Having manufacturing capability with no limits on dimensions means if a project has the opening, Airport Doors can design and supply the right gate, shutter or door and appropriate operational system. With 170 staff, and operations in every mainland state, the company can handle multiple major projects Australia-wide, ensuring timely delivery with the company’s own fleet of crane trucks, loading equipment and elevated platforms.



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## EXPERT AT SAFETY AND COMFORT

Air Pro brings a decade of experience, complete design-to-maintenance capabilities and an innovative approach to projects such as the Amberley RAAF Base’s A330 Simulator Building. The facility is used for training RAAF pilots flying the new A330 Multi-Role Tanker Transport (MRTT), designed as a dual-role air-to-air refuelling and transport aircraft.

Air Pro’s installation included air conditioning the main simulator hall, a compressed air system to the service workshops and one to the training capsule through medical air filtration. Critical cooling for the data processing area and general comfort cooling to office areas was also installed. Air Pro also provided the Mechanical Services for the Physical Fitness Facility, including the Olympic size pool, installing heating for both the building and pool water, and a pool water treatment system.

“The design was interesting as the duct installed in the pool area was FABRIC DUCT and not the conventional sheet metal duct. Fabric duct is a fabric sock that remains flat and resting in a U-shaped cradle while not in use and then when air conditioning is switched on the duct is slowly filled with air to form a round shape, small nozzles set at various angles allow the air to escape, conditioning the space,” explained Paul Foley, Air Pro Manager HVAC Commercial Projects.

“Fabric duct is getting very popular and can be installed in any colour. Fabric duct was also used in the Multi Purpose Hall and main gym areas. All mechanical equipment is controlled by a Building Management System that enables remote access and is ESD friendly.”

Another Air Pro project is Brisbane’s Clem7 Tunnel, where Air Pro has provided the critical cooling and ventilation systems. Their brief included egress pressurisation of the escape passageways, and critical cooling to 43 electrical switch rooms with ducted and split systems ranging in size from 120kw to small remotely controlled 3.5kw split systems.

Air Pro are the leading providers of air-conditioning systems, ventilation systems, electrical services, mechanical electrical switchboards, waste water treatment, LPG reticulation, HEPA Air filtration systems, chilled and hot water systems, smoke and fume extraction systems and Building Management Systems.

“We are leaders in our industry for both large and medium commercial air conditioning solutions as well as residential and small commercial installations. We have a fantastic team of qualified mechanical and electrical engineers, project managers, trades people, service technicians and sales engineers ensuring that any size project can be undertaken.” Said Paul Foley.

### AIR PRO AIR CONDITIONING, MECHANICAL SERVICES, ELECTRICAL SERVICES

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# JUST ADD BALLS AND BODS

There might not be a beach at Amberley RAAF Base, but they can still play beach volleyball. Play Hard Sports (PHS) provided the essential infrastructure for fun and games as part of the Stage Three Redevelopment – including AFL and Rugby goals; indoor basketball; volleyball and badminton; tennis posts and umpire chairs; and beach volleyball equipment.

PHS is a leading innovator in Australian manufactured and designed sporting equipment. They work according to Lean Manufacturing Principles aimed at waste minimisation, quality control, space optimisation and improved turnaround time – exactly the kinds of qualities Defence look for in a supplier.

“The RAAF Base project required constant monitoring for progress updates and engineer approvals for each piece of equipment and the timing of deliveries to site,” said PHS Director, Trevor Bowman.

“Installation work was often a challenge with unexpected situations requiring on the spot solution.”

PHS began operating in 1994 from a home garage in Western Sydney with one product; today they design and manufacture over 300 products for twelve different major sports and employ eleven people. Their products can be seen in some of the Nation’s biggest sporting arenas, such as the Gold Coast Titans Robina Stadium, where PHS designed and supplied hinged 18m high Rugby goals.

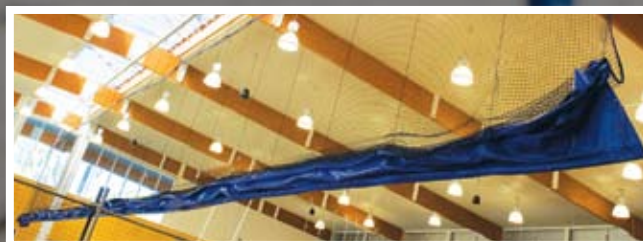
The Umpires on the show court of the Queensland State Tennis Centre sit in PHS designed chairs; they designed and supplied the athletics trolleys for the Brisbane Goodwill games in 2001; and they are the only supplier of IAAF certified hammer throw cages in the Southern hemisphere – among the places they have installed them are Sydney’s Olympic Park and Hunter Sports Centre.

PHS also design and manufacture basketball towers, hockey goals, netball goals, throwing cages for athletics, tennis net posts, soccer goals and volleyball posts. Other products which are unique to PHS are demountable cricket sight screens, egg shaped high jump mat covers, single pole side swing basketball towers and telescopic Rugby goals.

This is also the company to call for all the other elements of any sports facility including score boards, lane barriers, hurdles, tape measure rods, toe boards, lap counters, player shelters, wind socks and, of course, the winners’ podium.

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## AMAZING GRACE AT AMBERLEY

When people are under pressure, Grace comes in very handy indeed. For 80 Amberley RAAF Base office staff, having Grace Business Services on deck made for a smooth transition into temporary demountable quarters while Broad Constructions refurbished their office blocks, and a smooth transition back into them when work was completed.

Grace Business Services are a specialist division of the Grace Group of Companies, and provide logistical project solutions to corporate, industrial, private and government clients. Their comprehensive service ensures a ‘ready for work’ outcome, where all the packing, transfer and reinstatement tasks are taken care of by Grace’s discreet, professional and highly experienced staff. At Amberley, this included providing an innovative crate and skate packing system, which is ergonomic, weather resistant, crush proof and secure, and expedites a speedy pack and transfer operation.

Grace’s Project Managers provided the office staff with space planning for the temporary quarters, which maximised workstation layouts in the half a dozen prefabricated demountable units they were located in. The 15 member Grace team provided a dismantling, relocation and reassembly service for workstations, partitions, compactus units and other office fit out, in addition they also did the dismantle, transfer and set up of the desk top IT systems. As some of the egress points were very tight, flat packing was required but kept to a minimum to ensure efficiencies in productivity.



One thing the RAAF has to avoid is downtime – and it speaks volumes about the efficiency of Grace that both stages - into the temporary quarters and back out to the refurbished offices - took only two days per stage.

Grace Business Services offer a comprehensive suite of services Australia-wide, including Furniture, Fixtures and Fittings (FF&E) Installation; storage solutions; warehouse and industrial relocations; and new furniture supply. They are backed by the 99 years of experience the Grace Group has in the moving trade.

Other projects currently in progress include installation of FF&E packages into 261 apartments at the new Hilton Residences in Surfers Paradise; installation of FF&E packages for 580 student accommodation units in Adelaide and 390 student accommodation units in Sydney, both for Urbanest Development; Installation of FF&E for 289 apartments in Melbourne for City Tempo Developments; and relocation of 900 AECOM staff, 500 Technology One staff and 500 BUPA/MBF staff in Brisbane. With depots and offices in every capital city and many regional areas, Grace can provide timely, customised and comprehensive assistance to any major project.

### GRACE BUSINESS SERVICES

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## FINISH WITH A CLEAN SWEEP



**A**fter all the construction work on a project like the new Fire and Security Training School at Amberley, there remains one last job – the post-construction clean. Broad engaged industry experts, Queensland Construction Cleaning (QCC), to tackle this labour-intensive and detailed task, and was rewarded with brilliant results.

QCC completed a general builder's clean of all the new buildings including internal/external windows, external metallic structure, wet areas (toilets and amenities), all office furnishings and floors. All external carparks and driveways were machine swept, scrubbed and gernied with QCCs ride on sweeper and scrubbing machine. To access internal and external glass, Boom and Scissor lifts were used, and high speed polishing machines gave all the new hard floors and added sparkle.

Sixteen QCC staff worked on the project for two and a half months, using industry approved equipment and products, all non-hazardous and environmentally friendly wherever possible. QCC's experienced personnel are highly trained in OH&S, Blue Card inducted, and possess a professional approach, including a commitment to discretion and an eye for detail. All QCC staff at Amberley also undertook an induction by Broad into the specifics of this site.

QCC have rapidly established themselves as the company to call when major contractors need commercial, residential and fit out construction cleaning, or when commercial and major residential properties require

high windows cleaned, machine scrubbing and polishing for hard floors, and carpet cleaning. Watpac and Abigroup have just joined a client list which also includes Rohrig, Schiavello, Evans Harch, and QCC also recently completed a major job for Australand at Southlink Park, Parkinson.

“Our aim is to meet the needs of larger builders who we can partner with to establish long term relationships completing their larger and smaller jobs,” said QCC Sales Manager, Katie Hutabarat.

“Our point of difference is that we have invested a lot of time and money into systemizing the business to ensure we comply with construction companies’ paperwork and OH&S systems. Often what is most important is that we can turnaround this information and be onsite when they need us. Often smaller owner operator cleaning companies just can't keep up.”



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## KEEPING OUT RAVENOUS TIMBER PESTS



**D**epartment of Defence specialises in security – no wonder they chose Termimesh to protect new buildings at Amberley RAAF Base from our home-grown, building munching intruders, the termite. Termimesh was specified for all new structures which required termite protection in accordance with the building code.

There were multiple reasons for this: TMA Corporation (Termimesh Australia) has ISO 9001 accreditation, and the products are building code compliant and have CodeMark certification. As one the first non-chemical physical barriers on the market in 1992, Termimesh has proven impenetrable to termites, with Ultra Marine Grade stainless steel manufacture providing long term effectiveness. A key requirement on this installation of many thousands of square metres of mesh.

“The Termimesh System was supplied and installed to all concrete slab penetrations (ie pvc pipes, electrical conduits, copper water pipes, steel posts etc) prior to concrete pour. The Termimesh System was also installed to saw joints, doweled joints, (i.e. all concrete joints) and the perimeter block work and adjoining pathways to prevent concealed entry by termites,” explained Manager of Termimesh Ipswich, Chris Faint.

“The hospital refurbishment was by far the most complex of all the projects. This involved retro fitting Termimesh in many areas and the most variety of different types of installations.”

Termimesh staff worked on the project for the entire duration of Stage Three works, with a team of four installers, Manager, Pest Division Manager, Operations manager and administration ensuring the needs of multiple packages, multiple head Contractors and tight timeframes all round could be accommodated. The nature of the installation process required close coordination with other trades on site, and a rapid adoption of each Contractor's unique OH&S systems.

Termimesh is recognised across the construction industry as the best way to protect built assets from termite-induced depreciation. BFMP, the Head Contractor for the Western Sydney region BER schools projects elected to have Termimesh full systems used exclusively on all their school construction projects where termite protection was required.

“The construction programme timeline has been very tight for both the builder and Termimesh but by working closely with the builder we had the System installed on time and on budget,” explained TMA National Sales and Marketing Manager, Ken Birch.

Termimesh SA after much consultation with Baulderstone South Australia & The Edinburgh Design Team (consisting of Woodhead, GHD, Connell Wagner, Currie & Brown, RLB/Rider Levett Bucknall) has been awarded the termite control package for the Hardened Network Army (HNA) initiative stages 1 & 2, a multimillion dollar project involving the construction of approximately 54 buildings across the Edinburgh RAAF Base.

“Upon completion of both stages we would expect to have installed in excess of 12km of Termimesh to various facilities such as accommodation and base infrastructure. Due to the construction detail the installations consisted of not only protection to the perimeter of all these buildings but also to any construction joints as deemed necessary. This level of construction has also required an almost consistent presence on site, since our first portion of work which began in April 2009,” said Ken.

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## JOINERY SERVES THE COUNTRY WELL

Supplying the joinery and cabinets for part of the Amberley Stage Three redevelopment is a perfect showcase of how Aspect Joinery utilise the best in modern materials and computer-aided manufacturing processes to custom-build large orders for highly discerning commercial clients. Aspect Joinery's products for the project included 55 benches with Corian tops and all Laminate Finish, timber and veneered joinery.

Corian is a blend of 1/3 acrylic resin and 2/3 natural minerals, it is non porous, repairable, non toxic and environmentally friendly, just the kind of material Defence prefers. All of the board used in the project is EO, meeting the project's stringent ESD requirements.

Aspect Joinery have a workforce of 30, ranging from highly skilled tradespeople to a design department working with 3D computer based

design software, allowing the company to rapidly produce orders for highly specific customer needs. Aspect work on projects throughout Queensland ranging from multiple million-dollar plus commercial fit outs, multiple residential unit complexes, and also supplied the joinery for Oakley Airbase. They have at their fingertips a vast range of materials, including natural stone, Caesar stone, laminates and timbers, for the manufacture of joinery, counters, seats and benches.

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## ACCURATE AND TIMELY TESTING

Total Testing (QLD) delivered results fast for the Amberley Stage Three Redevelopment works. Their brief was to provide Level one certification in accordance to AS3798 – 2007, undertaking quality assurance testing including field density and material quality tests on the trench backfill and civil road works. Up to four Total Testing Geotechnical Technicians worked on the project over 18 months, using new methods which increased client productivity by delivering NATA-endorsed reports of test results typically within 24 hours. Considerable liaison with the various project engineers was also undertaken throughout.

Total Testing are NATA Accredited, and focus on producing efficient, professional, value-for-money solutions that assist clients to achieve results. They work at the forefront of technological advancement in testing and analysis to ensure clients receive the best testing service possible.

With major project success and long-term user safety reliant on the information they provide, Total Testing are committed to conducting their work with integrity, a commitment to industry best practice and the highest levels of safety.

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