

# FUTURISTIC CROWD-PLEASER

Grocon is one of Australia's leading development and construction groups. Founded in the 1950s by Luigi Grollo and growing to a major building company of the 1980s with his son Bruno at the helm, Grocon has continued to grow strongly into the new millennium headed by Daniel, son of Bruno and grandson of Luigi. The inspiration behind the privately owned, multi-generational organization has always been a dream of excellence. And it is this reputation of excellence in the construction industry that landed Grocon with the job of building the "Rectangular Stadium" for Major Projects Victoria – a futuristic \$267.5 million sports stadium built upon the Edwin Flack Oval within Melbourne's premium sporting precinct and commissioned by the State Government to house soccer, rugby league and rugby union games to a capacity crowd of more than 30,000.

Scheduled for completion in early 2010 this stadium will have a look like no other. Featuring the unique 'bioframe' roof design that provides extensive seating coverage, excellent spectator lines and a striking aesthetic structure, the design is based on the inherent structural efficiencies of the Buckminster-Fuller geodesic dome. This unique construction lends itself to creating an identity and branding recognition

important for the marketing of the stadium on a global level, both by attracting spectators and corporate sponsors for the tenant teams as well as assisting Melbourne to be more favourably positioned in a highly competitive global sports and events market. The distinctive roof line continues and advances the present architectural lineage of the precinct seen in the surrounding sports stadiums.

Featuring a dining room with capacity for up to 1,000 patrons, 24 corporate boxes, merchandising facilities, food and beverage outlets, bars and cafés, the stadium's focus will be a 136m X 82 m rectangular pitch that meets FIFA, NRL and IRB requirements, boasting an advanced, high quality, world class playing surface that can also be used for concerts and events.

The roof's 'bioframe' lightweight support structure makes better use of the stadium's internal space and requires roughly 50% less steel than an equivalent dipped cantilever roof covering the same area. Due to the high embodied-energy of steel, this saving not only represents a massive cost saving but a significant reduction in the overall energy and material needed to manufacture the components. The structure will be clad in a triangular, panellised façade made up

of a combination of glass metal and louvers. The metal panels are made with a urethane core sandwiched between steel outer casings and coated in a 'whisper white' custom produced colour sealant. Rainwater will be harvested from the roof and stored in tanks. The water system will be installed with low-use water fittings further reducing the volume of water used on the grounds and surrounding environs. A fully integrated waste management and recycling system will also be installed. Low-volatile organic compound carpets and stains and low-energy light fittings will be used in the fit-out making this building as environmentally friendly as possible.

Users of the stadium will include Melbourne Storm, Melbourne Victory and Super Rugby, which will position the stadium on the international stage. Melbourne Heart may also become regulars. Users can access elite training facilities, a gymnasium and lap pool, and there is also office accommodation for tenants including Melbourne Storm, Melbourne Victory, Melbourne Football Club, The Victorian Rugby Union, the Victorian Olympic Council, Olympic Park Sports Medicine Centre and Tennis Victoria. Carparking for over 300 of the tenants will also be available.

The stadium is one of Grocon's biggest jobs at present – Grocon has offices in Victoria, NSW and Queensland. The Melbourne Rectangular Stadium will add to an already globally renowned sporting and event precinct with a technologically advanced, environmentally friendly and highly sculptured organic design structure attracting national interest and international recognition.

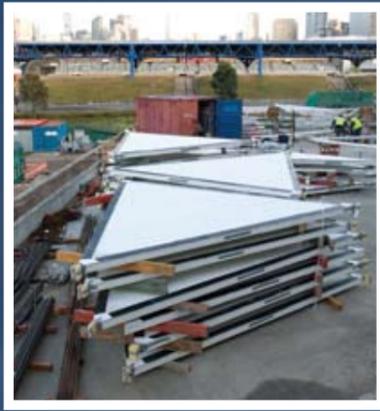
The first event has been announced as a Rugby League test between Australia and NZ on Friday May 7 2010 followed by Storm vs the Broncos on Sunday May 9.

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# RECTANGULAR STADIUM

**MAIN CONSTRUCTION COMPANY :** Grocon  
**DEVELOPER :** Major Projects Victoria  
**OWNER :** SPORTS & REC VICTORIA, MELBOURNE & OLYMPIC PARKS TRUST  
**AREA :** Melbourne, Vic  
**PROJECT END VALUE :** \$267.5 million  
**ARCHITECTS :** Cox Architects + Planners  
**CIVIL / STRUCTURAL ENGINEERS :** ARUP  
**SURVEYOR :** WT. Partnership



## HARMONY IN FORM AND FUNCTION

As one of the world's leading technology enterprises, ThyssenKrupp Steel Europe AG, has a particular responsibility for the people directly and indirectly affected by our work. This responsibility is reflected in our wide-ranging activities to support people and the environment. It is one of our chief priorities to take into account business, social and ecological aspects in our decisions.

After the take over of Hoesch Siegerland Werke by ThyssenKrupp and the foundation of ThyssenKrupp Bausysteme GmbH in 2003 and the recent amalgamation into the ThyssenKrupp Steel Europe AG Corporation in October 2009, the Profit Center Color/Construction Team of ThyssenKrupp Steel Europe AG now has a most extensive product portfolio and is the leading manufacturer of construction elements and systems made out of coil coated steel material. With a total of nine production lines for the brands Hoesch, ems-isolier® and Isocab composite cladding products we are in a position to offer the world's largest product range to our clients, architects, engineers and planners.

Our architectural product ranges effortlessly co-ordinate form and function, making them the perfect choice for creative specialists and architects in all fields of the construction industry.

ThyssenKrupp Steel Europe AG produces a full range of insulated panels for roof and walls. The panel options include fire rated, acoustic and cool storage either with polyisocyanurate (PIR) or rockwool cores. ThyssenKrupp Steel Europe AG panels have Factory Mutual approval FM 4480, Loss Prevention Certification Board approval LPC and fulfil many other international test requirements and are exported world wide with projects completed in Russia, Middle East, South America and Asia.

The ems-isolier® product line specialises in a range of solutions predominantly used in the design of deep freeze and cold storage facilities. With over 30 years of insulation panel construction experience, these products are a first choice for the food and beverage industry.

The Hoesch line of standard single and double skin products have been tried and tested over decades for simple and effective solutions in the rapidly expanding construction industry. The Hoesch line of products contains cutting-edge products for the ambitious construction of industrial structures, sports arenas and agricultural buildings in the modern age.

It is with this product line that the Melbourne Rectangular Stadium has been developed.

With a ground-breaking design for the Melbourne Rectangular Stadium roof, a product to reflect the unique, futuristic and technological appearance was highly sought after. ThyssenKrupp Steel Europe AG were chosen to supply the builders due to their innovative designs, competitive quotations and reliability. The roof design reflects the geometry of the soccer ball with a pattern of interlinking triangular panels in several different materials and finishes combining to form the well known hexagonal patterns used to form soccer balls. The metal faced 100mm thick isowand vario® ML-100-V insulated panels were designed and produced in Germany before being imported to Australia and assembled for the roof structure of the Melbourne Rectangular Stadium. The panels are a "sandwich-style" construction with an isowand vario® rigid polyurethane foam core for insulation. This foam has been developed by ThyssenKrupp Steel Europe AG and has been CFC free in its production since 1998. The panels are typically used for walls; however, a patented EDPM gasket was developed to allow these to be adapted for the roof application. A special 'whisper white' colour finish sealant, unique to Australia and the Rectangular Stadium Project, was developed to seal the panels.

ThyssenKrupp Steel Europe AG's Australian, New Zealand and Singapore sales representative and distributor Mr. Jon Lee of TKH Building Systems

Australia Pty Ltd, assisted with the design and engineering of the special patented gasket system, the supply and delivery of the panels, the tendering and presentation of the ThyssenKrupp Steel Europe AG system to construction company executives as well as the supervision of the job on site, to ensure efficiency and rapid installation.

ThyssenKrupp Steel Europe AG products have been available in Australia since 2005 through [www.tk-australia.com](http://www.tk-australia.com) and [www.thyssenkrupp-bausysteme.com/en/](http://www.thyssenkrupp-bausysteme.com/en/)

Recently TKH Building Systems Australia Pty Ltd. has been responsible for the installation of over 14,000m<sup>2</sup> at the Melbourne Airport re-development, 4,000m<sup>2</sup> at the Royal Women's Hospital and jobs for the Hydro Commission in Hobart as well as over 16,000m<sup>2</sup> of REC Scan Wafer non-combustible wall panels for a Sandvik regional distribution centre in Singapore.

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# Engineering Elegant Solutions



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Aurecon is a global group created by the merger of three world-class companies, Africon, Connell Wagner and Ninham Shand. Together, they provide multidisciplinary engineering and consulting services to some of the world's most complex and important infrastructure, commercial and industrial projects.

From working on difficult site conditions, to the inherent challenges of tall buildings, to the complexities of stadia design; from facades, fire engineering and 3D modelling to building science, security and sustainability, the group's Asia Pacific Development Manager for the property sector, David Johnson says "we thrive on interesting challenges".

Aurecon's vast experience in delivering stadia design includes projects such as the iconic Peter Mokabe Stadium in South Africa, Wembley Stadium in the UK and the Melbourne Cricket Ground. Hence, their skills were called upon to provide engineering design services for the new redevelopment at Adelaide Oval.

The innovative roof design created the challenge of combining technical requirements from the consultants and providing a buildable solution within the allocated budget.

"We've gained a strong reputation for our lateral thinking and elegant design solutions in many aspects of building engineering, including tall buildings, sporting and leisure projects, airport terminals and other transport facilities, education, justice and health facilities" says Johnson.

"Our priority is to continue to build and nurture strong and collaborative relationships with our clients to gain a clear understanding of their business and project objectives".

Following the merger in March 2009, Aurecon has expanded its global reach with over 6,000 staff in 87 offices across 28 countries. The team's experience in often challenging terrains makes them flexible and resourceful, allowing for a highly effective and efficient allocation and mobilisation of resources.

Aurecon's sound understanding and knowledge of critical factors including geographic, cultural, climatic, environmental, statutory and legal requirements in global markets gives clients peace of mind as they enter new frontiers. Johnson continues "our relationship with our clients is at the heart of everything we do - it's built on quality, accountability and shared success".

**Enquiries:**

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# BRILLIANT THINKING CUSTOM-MADE

What have the Australian Track Cycling Team and Melbourne's new Rectangular Stadium got in common? Sport, obviously, but they also share an engineering firm. Melbourne's Nezkot makes the Cycling Team's bike frames, and produced integral parts for the Rectangular Stadium's distinctive Bio frame roof, the 40 Groin Anchor assemblies and the 40 Groin Bases which anchor the roof structure securely.

The Groin anchor assembly consisted of two cruciform plates being welded to a 300mm steel ball, supported by four conical sections. These assemblies were delivered to the suppliers of the Bio frame roof and welded to the existing pipes. The Groin anchor bases consisted of a 700mm x 200mm round base machined to accept the Steel ball from the anchor assembly, two keeper plates that lock the steel ball into position, a 500mm x 970mm round billet that supports the base, another 60mm x 700mm base plate and fifteen four meter lengths of steel bar welded at compound angles to the base. Each complete base weighed approximately 5 tonne.

The material for the job was mostly grade 350 mild steel, and as some of the material needed was not readily available in Australia, Nezkot had it custom forged through their vast supplier network. All material was then ultrasonically tested to AS 1065 L1.

"With our state of the art equipment we are able to perform all the complex machining applications to a tolerance of .01 mm. We utilised our precision engineering expertise to develop work holding fixtures for the complex welding applications. This ensured us a quick set time for the robotic welding and a superior job," said Nezkot Director, Sal Sansonetti. "On the components we supplied we tested 100% of welds on all the bases and assemblies to AS 1554 L1, this was to ensure that the quality of our work was first class and exceeding our quality requirements."

When the first bases were delivered to site at the stadium for installation by Grocon engineers, Grocon Steel Roof and Façade manager Vanessa Goulding said they looked "absolutely awesome".

Nezkot is an ISO 9001 accredited advanced precision engineering company with one of the largest capacity workshops in Australia. Their highly skilled workforce operates first rate equipment regularly calibrated by independent NATA experts. They can CNC machine 5 axis components 5 meters long, 2 meters wide and 1 ½ meters high, and Nezkot's high precision CNC turning equipment handles jobs up to 6 meters in length and 900mm diameter. The workshop is equipped with cranes that can lift 25 tonnes.

An in-house design team drive ongoing innovation and invention of unique products, using the latest 3D modelling software to create customised engineering solutions for any application. Nezkot is also the parent company of Bike Technologies Australia, the supplier of carbon fibre bicycle frames to the Australian Cycling team.

"We started 25 years ago designing moulds for plastic components for the Automotive industry. Gradually, we have evolved into a world class precision engineering company that produces tooling and engineering solutions for all major industries including Aerospace, Defence and Automotive," said Sal Sansonetti.

"We have become a one stop shop for our customers. We continually invest in new technologies, and our commitment to customers is what will ensure our continued success in the future. At Nezkot we measure our success by the ability to have a positive impact on our customer's business. This was our first major project in the construction industry and it was very successful for both us and our customer."



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# PUMPED TO DELIVER

Improved Concrete Pumping Services was founded over 30 years ago by General manager Bruno Tancredi. Together with managing director Paul Willard ICPS run 16 different sized trucks and over 45 personnel. The trucks range in size from a 55 metre boom (three of these are available) down to a single 22 metre boom. ICPS also offer two 49 metre booms, two 42 metre booms, two 36 metre booms, two 32 metre booms and one 28 metre plant. This broad range of different sized booms allows ICPS to tailor a truck to the job at hand ensuring that the power to weight ratio of the concrete that needs to be moved is perfectly balanced with the size and strength of the truck and its pumps. This means that the right amount of concrete gets to the right area within the right timeframe. All incredibly important points in dealing with a substance that sets quickly and is particularly heavy and viscous making it tricky to move. By utilising the static high pressure line pumps on the trucks in this situation ICPS make sure that the job gets done right everytime. A job that carries with it more risk than one might expect.

The pressure required to move the concrete from the truck and up the boom is fairly substantial. ICPS ensure that at all times the maintenance

of their trucks is of the highest standard so as to minimize the risk of the concrete lines bursting or becoming unrestrained, the pipe clamps being dislodged or the pump failing. Fairly common problems in the concrete pumping game they can be disastrous to a job when working to a tight schedule. And this can be debilitating to a companies reliability and reputation. Three decades of successful pumping, highly maintained trucks and well trained, supervised, competent and experienced concrete pump and boom operators ensure that ICPS can safely operate and maintain the equipment that for some developers is the heart that pumps their 'life blood.'

ICPS were subcontracted into the job of building Rectangular Stadium by Melbourne based Grocon who brought in their own concreters. The trucks supplied to the Rectangular Stadium site are varied in size, allowing ICPS and Grocon to tailor the size of the truck to the size of the job at hand. Each truck is driven, worked and supervised by a select team from the ICPS headquarters. Each plant operator is familiar with the pump and its equipment in line with advice and information from the manufacturer. Each ICPS operator will; undertake a daily inspection of the plant and its maintenance before pumping starts each day, always attend to the equipment or make sure that a competent person is in attendance if working away from the equipment, pump concrete only when the grill is in the closed position, make sure that pump flow rates match discharge rates of concrete delivery trucks, be based at the pump

and have a clear view of both the hose-hand and the hopper. If a clear view is not possible then another competent person, other than the delivery truck driver, will be based at the hopper and be responsible for stopping the pump, following the directions of and maintaining communications with the hose-hand, so as to ensure accurate and safe pumping of concrete in all situations as per section 4.3.2 of the Concrete Pumping Code of Practice 2005.

The main area of stress in the whole line is the delivery hose due to the fact that this piece of equipment is under the most pressure from the pump, multiplied by the weight of the concrete itself. Damage to the delivery hose may cause the concrete to discharge under pressure resulting in a dangerous situation that could be problematic for the development and potentially harmful for the operators and their assistants. ICPS ensure their equipment is of A1 standard by checking all hoses before being fitted, by fitting a suitable stop device at the outlet end of the hose where it is located above a working or public area, by fixing the delivery hose fitting on a boom pump with a safety chain, sling or other retaining device in line with Australian Standard 1418.15. Steel re-enforced hoses are used with high pressure pumps on high-rise satellite booms and 'reducers' are used to avoid overload of the hose or other parts of the unit ensuring that Improved Concrete Pumping Services deliver their workload to Melbourne Rectangular Stadium promptly, safely and reliably everytime.



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## CBS PLUMBING BRING EXPERTISE TO STADIUM



Collingwood Building Services Pty. Ltd. is a wholly Australian owned private company involved in the supply of Hydraulics services to the Commercial, Industrial and Multi-storey Residential building sector since 1924. With permanent offices in Victoria and Queensland, projects in other states are handled on a site by site basis.

The inception of CBS plumbing in the early 1900's began a company that continues today to ensure quality of work through experience and value of the staff at hand. With many key employees having been with the company for well over 20 years, maintenance of the standards required within the company is well understood and strongly implemented.

The CBS Group of Companies offers clients a one stop shop approach to commercial, high rise and industrial plumbing design, installation, project management and ongoing maintenance. The Major projects division ensures that any large scale contracts that come through are dealt with both time and cost effectively by people who have a wealth of experience and background in this type of specialised area. Whether estimates are required for budget purposes, traditional tendering, negotiated or project managed work, CBS have experience in a range of different applications including:

- Large and small multi-storey buildings, both commercial and residential.
- Major Hotels and accommodation projects.
- Large and small industrial projects such as power plants and factories.
- Large and small shopping complexes, both new and operational.
- Large and small car parks.
- Hospitals, schools and prisons.
- Major refurbishments and conversions.
- Large and small recreational complexes and facilities.

CBS also have a separate specialised division with a workforce dedicated to "Smaller works and Tenancy fit-outs" covering the commercial sector.

The company as a whole believe a different approach and understanding is required for this type of work and as such have specialised in this area for many years offering their clients the full range of hydraulic services for fit-outs from inception and planning, through briefing and problem solving, documentation and approval, to installation and commissioning.

The CBS group offers hydraulics and associated works maintenance to all types and sizes of commercial and industrial complexes. The range covered is the same as their Major works portfolio and is offered to clients on a 24 Hour, 7 Days per week basis with guaranteed response times to suit the particular needs of clients.

Recently CBS have also branched out into the concrete coring and cutting sector with establishment of a new dedicated division.

Due to the cutting edge "bio-frame" design of the roof system at the Rectangular Stadium a plumbing system was needed firstly to contain and control the water where possible and secondly to transport it to the storage tanks on the premises located at the southern end. The rain water is used for the flushing of the toilets as well as washing down the plats (seating area) and the roof. Provision has been put in to supply rainwater or recycled water for the irrigation of the pitch and gardens in the future when additional tanks are installed, to endeavor to save Melbourne's precious water supplies and still maintaining the pitch in pristine condition for a world class stadium. A solar hot water system has been installed and is supplementing the hot water plant. The hot water plant supplies hot water throughout the stadium to all change

rooms, clinics, corporate areas as well as kitchens and concession areas throughout the stadium.

One of the larger projects for CBS, the Rectangular Stadium is added to an already impressive resume of completed projects. These include; the Northern stand at the M.C.G., Southern Cross Station, Royal Melbourne Hospital redevelopments and work for clients including AMP, BHP, Coles Myer, Siemens, Deloitte, and the Victorian Government.

**cbs** PLUMBING  
COMMERCIAL & INDUSTRIAL PLUMBING CONTRACTORS

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Telephone Direct (03) 9411 3900 Fax (03) 9419 4766

# KLM GROUP SWITCH ON STADIUM



## STADIUM FASTENING

With 45 branches across Australia and over 500 employees, Coventry Fasteners is known as a true fastener specialist, offering customers of all sizes a diverse range of products. Key product groups include industrial fasteners, construction fasteners, stainless steel fasteners and hardware, studbolts, specialised fastener products and associated tools and consumables.

Part of the publicly listed Australian company Coventry Group Ltd which was incorporated in 1936 and listed on the ASX in 1966, the Coventry Fasteners business has grown over the years through the strategic acquisition of various distributors across the country.

It is therefore of no surprise that they were selected by Grocon to work on the Rectangular Stadium project. Working closely with Grocon from the beginning of the project, Coventry Fasteners assisted with the sourcing of various fastener products, specified by the engineers. They supplied the majority of the major construction fasteners such as structural bolting, specially manufactured holdown bolts and a range of speciality fastener products for the unique bio-frame stadium roof design.

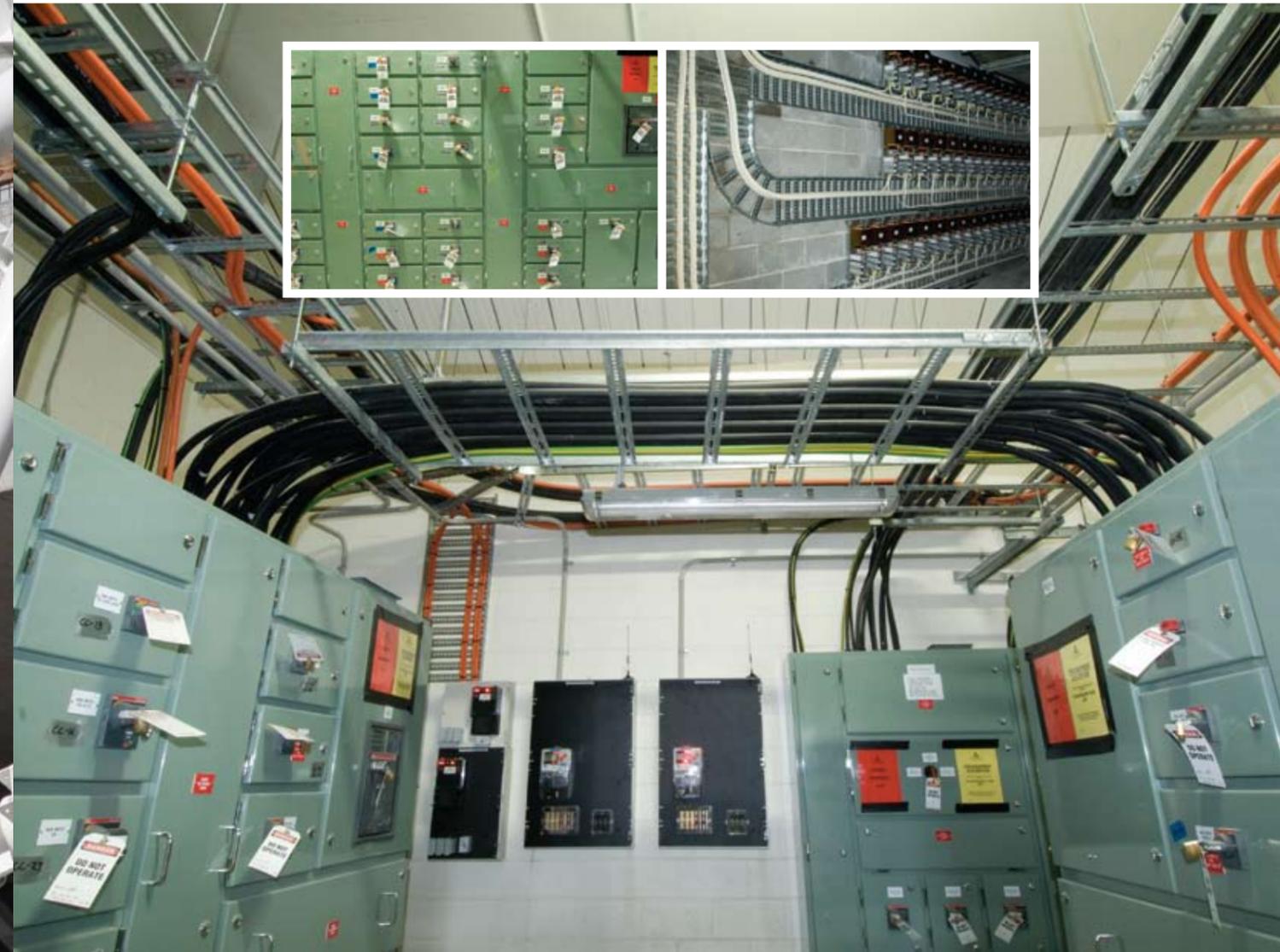
The challenge of sourcing a range of specialty fastener products, including a special coating and the remanufacture of products was

successfully achieved by Coventry Fasteners for this unique project. No matter what type of fastener is needed, Coventry Fasteners will either have it, source it or get it manufactured to meet customer specifications.

Coventry Fasteners' extensive experience Australia-wide includes the East Link and City Link projects; the Lane Cove, Domain and Burnley tunnels; the MCG and Docklands stadiums; and the Gold Coast and NSW desalination plants. Such projects have contributed to the skill set and experience they provided to Grocon and the Rectangular Stadium.

For further details please contact your nearest **COVENTRY FASTENERS Sales Manager:**

<b>NSW</b>	Gordon McKenna	(02) 9616 6100
<b>QLD</b>	Heath Bryant	(07) 3291 8200
<b>SA</b>	Jordan Ray	(08) 8300 8700
<b>VIC + TAS</b>	Jeff Birkett	(03) 9368 7900
<b>WA</b>	Nigel Burr	(08) 9350 3600



The **KLM Group's** expertise was called upon for the design and construct of the electrical and communications services at the Rectangular Stadium. This included all voice and data cabling, LED cabling for the Stadium's façade feature lighting, audio visual cabling services in the corporate dining room, television and radio broadcast cabling, and the Stadium's video score board cabling. **KLM Group** also provided electrical services including all power, lighting and mains infrastructure (main switchboards), together with the Stadium's pitch lighting. The entire Stadium's lighting systems were automated and controlled by a Dynalite lighting control system.

With an average of 40 people working on site every day, installation began in January 2008. The Rectangular Stadium project presented many challenges due to its unique canopy roof structure. This created an unusual working environment for the **KLM Group** workers, as there were no catwalks, therefore creating extremely difficult access. Consequently, all lighting had to be mounted off a speciality lighting truss and typical installation practices had to be reviewed and redefined to suit the roof structure so scaffolds, scissor and boom lifts were utilised.

The **KLM Group** were required to conceal the cabling as much as possible. Typically the cabling is orange and black, which would stand out

on the Stadium's white canopy structure. To overcome this, **KLM Group** sourced the production of a specialised 'white UV stabilised cable' that is protected in the sunlight. This cabling was used for the pitch lighting.

**KLM Group** was established in 1981 and has a team of over 800 employees across Australia. Having earned an enviable reputation as one of Australia's leading electrical and communications providers, they are able to offer customers a range of related services in one installation including audio visual, video conferencing, security and energy management services, providing a fully integrated solution.

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# ELIOTTGROUP

The Elliottgroup of companies is a specialist group of engineering companies with origins dating back over a century in Australia.

Today **ELIOTT ENGINEERING P/L** is situated in Kilsyth on 2.5 hectares & 10,000 M2 under roof. This site specializes in small to large scale fabrications from sheet metal components to huge pieces of mining and construction equipment. Steel processing includes numerous CNC-profiling machines with fuel gas, plasma cutting, marking and edge bevelling capabilities. Metal forming and press brake machines up to 1,700 tonne capacity x 9,500 bending length with plate and section rolling machines capable of rolling plate up to 100 thick. Specialist welding caters for construction, structural and pressure / process industries. In house abrasive blasting and protective coating with one of the largest blast booths in Australia.

**ACTIVE ERECTIONS** is based in Kilsyth and specializes in the turn key erection and installation of small and large scale fabrications and equipment. Expertise is shared between the companies together with skilled workers to ensure smooth consistent results. Key equipment includes cranes, access equipment, specialist site tools and other field equipment necessary to complete the task at hand. Also offered is medium to heavy transportation including oversize and over dimensional loads using in-house heavy transport equipment.

**MECHANICAL ENGINEERING CORPORATION P/L** is situated in Yallourn on 5.75 hectares with 20,000 M2 under roof. This facility has one of the largest range of specialist machining, fabrication and fitting equipment in Australia, the range includes numerous machines and configurations covering milling, turning and boring. The range is impressive and includes some of the largest boring and turning machines able to turn vertically 40T @ 7,000 diameter x 2,700 high, or horizontally 90T @ 3,600 diameter x 18,000 long. The fabrication shop also contains some of the largest equipment around including CNC-profile cutters, plate rollers, presses, heat treatment facilities and specialist fitting shop and again abrasive blasting and protective coatings facilities combined with extensive crane handling capacity and rail link throughout the workshops.

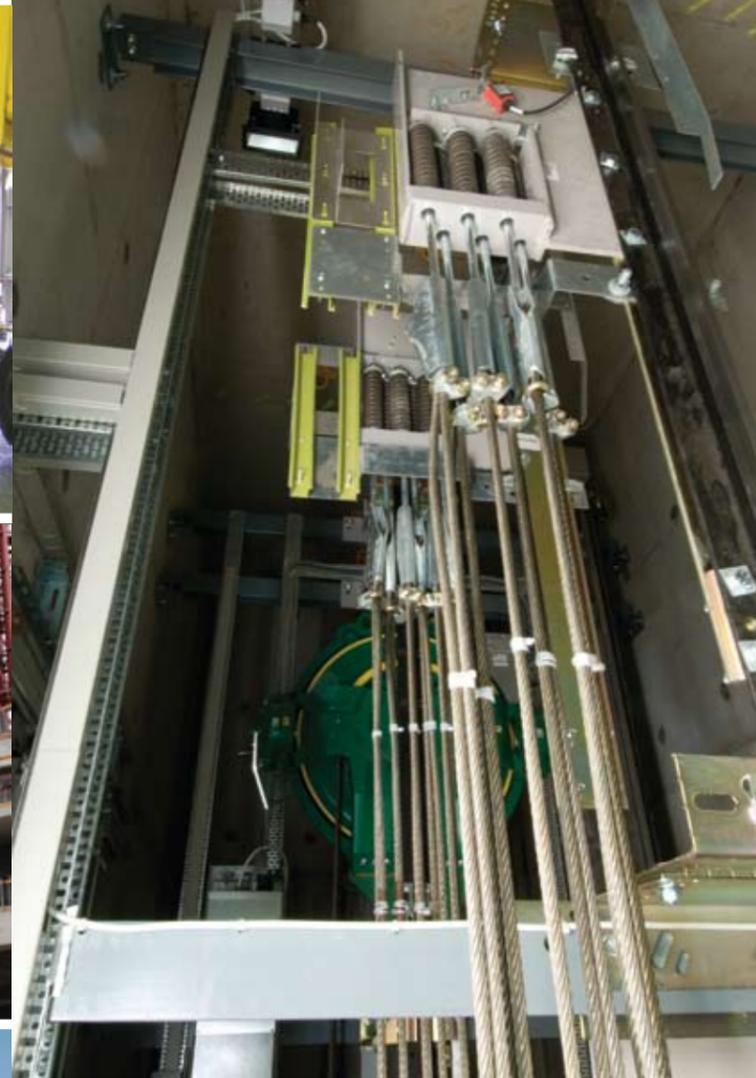
Typical industries catered for within the group include Coal, Gas, Hydro and Wind power generation, Construction, Advertising/Signage, Mining, Paper, Transportation, Timber and other General industries Australia Wide.

Recent Projects include: fabricating, blasting and coating all of the bowl/ Upper terrace steelwork for Grocon's Melbourne Rectangular Stadium. The high pressure headrace tunnel, bifurcation and penstock for the AGL Bogong Hydro Power Station. The blasting and coating of all the painted sign gantries on Eastlink and the on-site erection of all sign gantries. Fabrication, blasting and coating of the Joffre Street pedestrian bridge over Eastlink, the Ringwood pedestrian bridge tower and the complete fabrication, blasting, coating and erection of "Public Art Strategy" (Bird & Worm), one of the major art works along the Eastlink tollway. Blasting and coating of Deer Park By-Pass bridge members with sections 46M long and weighing over 80T per piece.

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AUSTRALIAN NATIONAL CONSTRUCTION REVIEW



## GETTING VERTICAL AT RECTANGULAR

As one of the world's leading elevator and escalator companies, Kone Elevators provides its customers with state of the art elevators and escalators and innovative solutions for their maintenance and modernisation. This global company was selected to supply and install the vertical transport for the Rectangular Stadium.

A team of five people installed 10 elevators for use by the public and back of house staff at the Rectangular Stadium, with work commencing in 2007. A straightforward project for Kone, they used the revolutionary MonoSpace® elevator—an Eco-friendly elevator that uses less energy than conventional overhead traction or hydraulic elevators.

First introduced to the world in 1996, Kone invented the now famous Kone MonoSpace® Machine-Room-less elevator. Designed especially for low-rise to mid-rise buildings, it only requires space for the elevator shaft itself—an ideal space-saving solution. Kone are able to tailor the car designs and door systems to integrate into a variety of buildings and decors. They are renowned for allowing more design freedom for architects, lower construction costs, reduced energy consumption and freeing up building space. The Kone EcoDisc® technology utilized in their elevators results in 50% less power being consumed due to its high electrical efficiency and low friction losses. Over 200,000 Kone

MonoSpace® elevators have been installed worldwide—proof of Kone's reliability.

Within Australia, Kone have many projects to their name, such as the Southern Cross Towers in Melbourne, the City Central Towers in Adelaide and the 140 William Street building in Perth. Worldwide they have also serviced Beijing Capital Airport, the Trump Tower in Chicago and the Marina Bay Sands™ Integrated Resort in Singapore. As well as providing Kone People Flow™ solutions to architectural landmarks, they also provide elevators and the like to office buildings, shopping centers and residential buildings.

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Custom Glass and Fittings have supplied over 5500 square metres of high end architectural glass to the Melbourne Rectangular Stadium project for the construction of the unique façade and roof design.

Custom Glass and Fittings supplied the three different styles of ceramic “frit” patterned glass panels to the project. Designed to slightly inhibit incoming light in different ways whilst providing the obvious benefits of protection from the elements and a unique and complex array of triangular patterns, the roof takes on a futuristic soccer-ball patterning as the triangular panels of glass and aluminium are installed.

Custom Glass and Fitting was founded in 1997 and the fledgling company soon grew to be a major supplier to commercial construction projects throughout Australia, finding their niche market by specializing in high end architectural glass products, performance glass and stainless steel fittings.

Custom Glass and Fittings specialize in the supply of toughened glass, toughened heat soak tested glass, heat strengthened and toughened laminated glass, energy efficient / high performance glass, double glazed units, planar glass façade systems, custom made stainless steel and steel products, bullet / fire / blast resistant glass, curved glass, shower /

frameless door / balustrade hardware as well as aluminium composite panel and pre fabricated window systems. All glass is manufactured, certified and warranted to Australian Standards AS2208.

With many large projects behind them including the MCG Redevelopment, Melbourne Convention Centre, Adelaide University, Southern Cross Station, National Australia Bank Head Office, Fox Studios, National Gallery Of Victoria, Myer Bourke St Redevelopment – Custom Glass and Fittings can supply the most diverse range of products for both small and very large projects.

For more information please refer to their website at [www.cgf.net.au](http://www.cgf.net.au) or contact David Briffa on 0422 862 842.

**CUSTOM GLASS AND FITTINGS**

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Rectangular Stadium, VIC

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**International:**  
Kadir Has Stadium (Turkey), Eden Stadium (Prague), Parc y Scarlets (Wales), Dolíček stadium (Prague), Croke Park (Dublin), Due Pini Stadium (Italy), Dolphin Stadium (Miami), Stadium Municipal (France), Vest Sports Centre (Denmark)

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