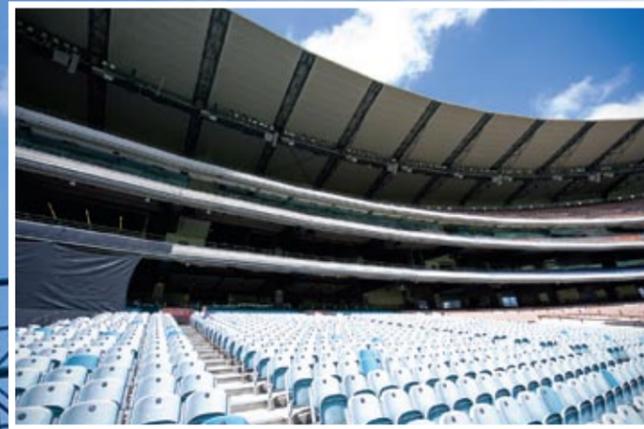


# A WINING MATCH

Construction Engineering and the MCG have proved a winning match

MAIN CONSTRUCTION COMPANY : Construction Engineering  
CLIENT : MCC  
PROJECT MANAGER : Case Meallin & Associates Pty Ltd  
PROJECT END VALUE : \$55 Million  
COMPLETION : November 2012  
ARCHITECTS : COX Architects  
STRUCTURAL ENGINEER : Aurecon  
BUILDING SURVEYOR : Phillip Chun & Associates  
QUANTITY SURVEYOR : WT Partnership



Just as football season is all about team players, so was the Great Southern Stand project at the MCG. Lead contractor for the refurbishment, Construction Engineering, takes a teamwork approach to all their projects, ensuring they meet the required goals on time, and without major safety incidents.

There were seven separable portions to the project, however the main works were divided into two major stages. Stage one:

- Demolition of two circa-1991 function rooms back to the shell and fitted out.
- The deconstruction of the Melbourne Football Club administration area and corporate boxes, and conversion into the AFL Dining Room.
- Re-constructing the Barassi Cafe and the Hayden Bunton Sports Bar on level B1.
- Gates 5 and 6, upgrading the gates to a more open design with turnstiles so the public were able to view the playing surface as they enter the gates; opening up the concession area and concourses.

Stage two:

- The demolition of the three circa-1991 function rooms on level 2 back to the shell and fitted out.
- Gates 4 and 7, upgrading the gates to a more open design with turnstiles so the public were able to view the playing surface as they enter the gates; opening up the concession area and concourses

Other works included new epoxy finish to all existing floors and new perforated ceiling panels to numerous areas within the concourses & concession areas of levels B1 & level 1; and refurbishing all the amenities.

There was also an upgrade of plant and infrastructure, including replacing the hot water system and installing gas-fired boilers, and installing new air handling units for the AFL Dining Room. The two Main Switchboards were replaced which included setting up of larger generators to keep the southern stand "live" for the week it took to changeover. All of the existing seating to level 2 was removed, the seating plats had epoxy applied to them and new seating was installed. An AVAC system was installed in the stands, which will collect rainwater and use the water when washing down the seats. The water is then collected by a vacuum system at the bottom edge of the grandstand, and transferred to the basement for disposal via the stormwater (rainwater) and sewer system.

"The goal of the project was to refurbish the whole Southern Stand to bring it online with the newer Northern Stand. The project was very difficult initially in terms of the building process in stage one, basically due to the difference between existing conditions to what had been documented. Stage two was much easier as we were obviously more aware of the previous issues and conditions encountered," said Construction Engineering Project Manager, Greg Short.

"The timeframes were very challenging, trying to get work on the gates and function rooms completed in the short time between Grand Final Day 2011 and the opening round of 2012. Almost 60 percent of the project needed to be completed in six months.

"We had a few international cricket games to work around too. During Stage One, three of the function rooms were still operating, which created a storage issue. We stored materials on the concourse, and then had to move them when the MCG was operating. With Stage 2 we were subject to greater logistical issues as we were working around the MCG's AFL Fixture so we were moving in and out before and after each round.

"We had painted hoardings in and around working areas, and we had to be out of the MCG before games. We had weekly walk-arounds with MCG staff before every game checking for all types of hazards to ensure that the public were not compromised when attending the facility. There was also the added OH&S issue of needing to ensure clear access routes in case of an emergency."

Due to the skilful management and high level of technical expertise Construction Engineering's team of 15 brought to the site, the project has been completed to a very high standard of quality. The team included project management, a General Foreman, three area foremen, an OH&S representative, labourers and a site amenities person. The 20 subcontractors involved in the project brought the peak daily workforce to 250, with clear communication between all trades maintained so that work could proceed swiftly despite the constraints imposed by the ongoing operation of the venue.

For Construction Engineering, the success of the project is further proof of the value of their collaborative approach to construction. As one of Melbourne's largest privately-owned building companies, they have been building a reputation since 1953 for delivering successful outcomes and resolving challenges. The company's leadership combines the management, engineering and analytical skills of tertiary graduates with the technical expertise earned on site in the building trades, and all staff are continually undertaking training, including Master Builders' Association courses. A group decision style is followed, which encourages unique and innovative solutions to complex construction problems.

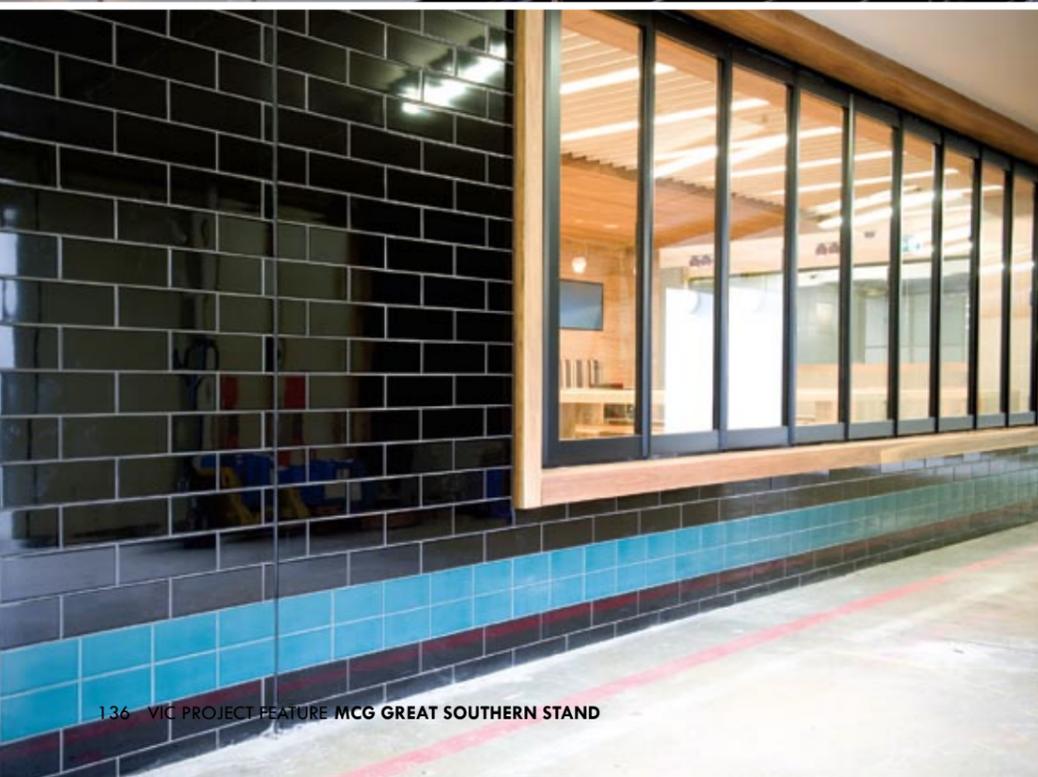
Construction Engineering have undertaken projects across commercial, entertainment, retail, industrial, health, education, hospitality, multi-unit residential and institutional throughout Australia, and has offices in Melbourne and Southport, Queensland.

Other outstanding construction successes include the Melbourne Aquarium, The VRC Birdcage Precinct, Healthbridge Women's Health Centre, Watergardens Shopping Centre, Melbourne Showgrounds, Waterfront City, The Melbourne Clinic, the Epworth Medical Centre, Allamanda Surgicentre (Queensland), Australian Federal Police Offices (Robina, Gold Coast).

For more information contact Construction Engineering, Victoria - Head Office 28 Albert Road, South Melbourne 3205, phone 03 9699 1122, fax 03 9699 7579, email [cca@ceaust.com](mailto:cca@ceaust.com)  
Queensland Office Suite 2, Level 1, 60 Nerang Street Nerang, Qld, 4211 phone 07 5502 4288, fax 07 5500 4073, email [ceqld@ceaust.com](mailto:ceqld@ceaust.com) website [www.ceaust.com](http://www.ceaust.com)



# PEERLESS TILING CRAFTSMANSHIP THAT'S FIT FOR CHAMPIONS



For the upgraded function spaces of the MCG, Akkari Tiling have ensured the designer's vision was beautifully manifested, with their meticulous workmanship, outstanding ability to source unique high-end products and cohesive teamwork achieving the completion of all major tiling works in time for AFL season kick-off.

Akkari Tiling's team supplied and installed all the ceramic, stone and porcelain tiles for the AFL Dining Room on level 2, plus retiling all the lobbies, the Jack Ryder Function Room, the Lindsay Hassett Function Room, the Legends Room, the Tom Willis Room, the AFL Sports Bar on level B1 and the Ron Barassi Cafe.

The task was complex, including not only tiling on the walls and floors, but also decorated columns throughout level 2. "There was a lot of imported products. Logistically, this job was very challenging," said Akkari Tiling Director, Huss Akkari.

"We produced a lot of intricate work, using a lot of stone products and a few items which are very new to the global market, and have never been used in Australia before. In the Ron Barassi Cafe, the tiles included a raindrop shaped blue ceramic tile with a glass insert between the tiles. There was a considerable amount of man-made stone tiling, and many of the bar fronts and walls feature ceramic bevelled tile. Being the MCG, the designs for the tiling were very high-end, and distinctively different for every room.

"All the adhesives used were low VOC, we use environmentally friendly adhesives on all our jobs. A key aspect was liaison with other trades, as we were working around everyone – mechanical services, plasterers, electricians and carpet layers.

"It was a very tight program, with extremely high quality requirements. Access was a major challenge too. We were running two shifts a day, with our biggest shift at night due to the traffic situation making day time deliveries difficult. It helped we have our own access equipment including pallet racks and pallet jack trolleys. "In the end you just apply yourself to the situation. Our team is very good and cohesive, so we were able to achieve the end result effectively, to a very high standard and in time for the first game of the season."

In total, Akkari Tiling completed approximately 3,000m<sup>3</sup> of tiling, using 25 different types of tiles, some of which required extremely careful handling. With such a large proportion

of imported products, avoiding waste through breakage was very much a priority. On average, twenty of the company's tilers worked on the project in teams, doing two shifts a day, seven days a week, from late February 2012 through to July 2012.

An independently owned company, Akkari Tiling has been producing outstanding work for projects across high end residential, hospitality, recreation, commercial, retail, industrial and government projects since 1980. Their capabilities include all wall and floor tiling, using a variety of systems including standard tiling, versa pad system and mechanical fixing for cladding.

The company's Directors bring global experience to their client's designs, having worked in the industry in Saudi Arabia, Dubai and Jordan. This has given them an immense amount of knowledge and experience in a variety of tiling techniques and a valuable insight into the wide diversity of tiling products produced around the world. A sister company, Stones of Arabia, focuses on retailing a range of stone tiles, stone cladding, ceramic, glass, porcelain, marble and other tiles, and tiling products, which are sourced from around the world.

No matter how unique an architect's vision, the two companies can procure and install the perfect result, including complex mosaic work in stainless steel, glass, or ceramic, such as the massive, stunning ceramic tile mosaic Akkari Tiling created for Melbourne Central Food Court.

Other major projects have included Bayside Shopping Centre (Victoria), Centro in Airlie Beach, Centro in Mildura, Knox Private Hospital (Victoria), Flemington Race Course and 206 Bourke Street. The company has also supplied their talents to projects in Perth, Adelaide and Tasmania.

For thousands of years tiles have been used to achieve a unique combination of practicality and beauty. Akkari Tiling continues to evolve the capabilities of the materials, combining the best of traditional trade skills and multinational experience, with the leading edge in installation techniques and highly specialist procurement, to deliver a premier, quality result.

For more information contact Akkari Tiling, phone 03 9464 2068, fax 03 9464 3397, email: [info@akkaritiling.com.au](mailto:info@akkaritiling.com.au), website [www.akkaritiling.com.au](http://www.akkaritiling.com.au)

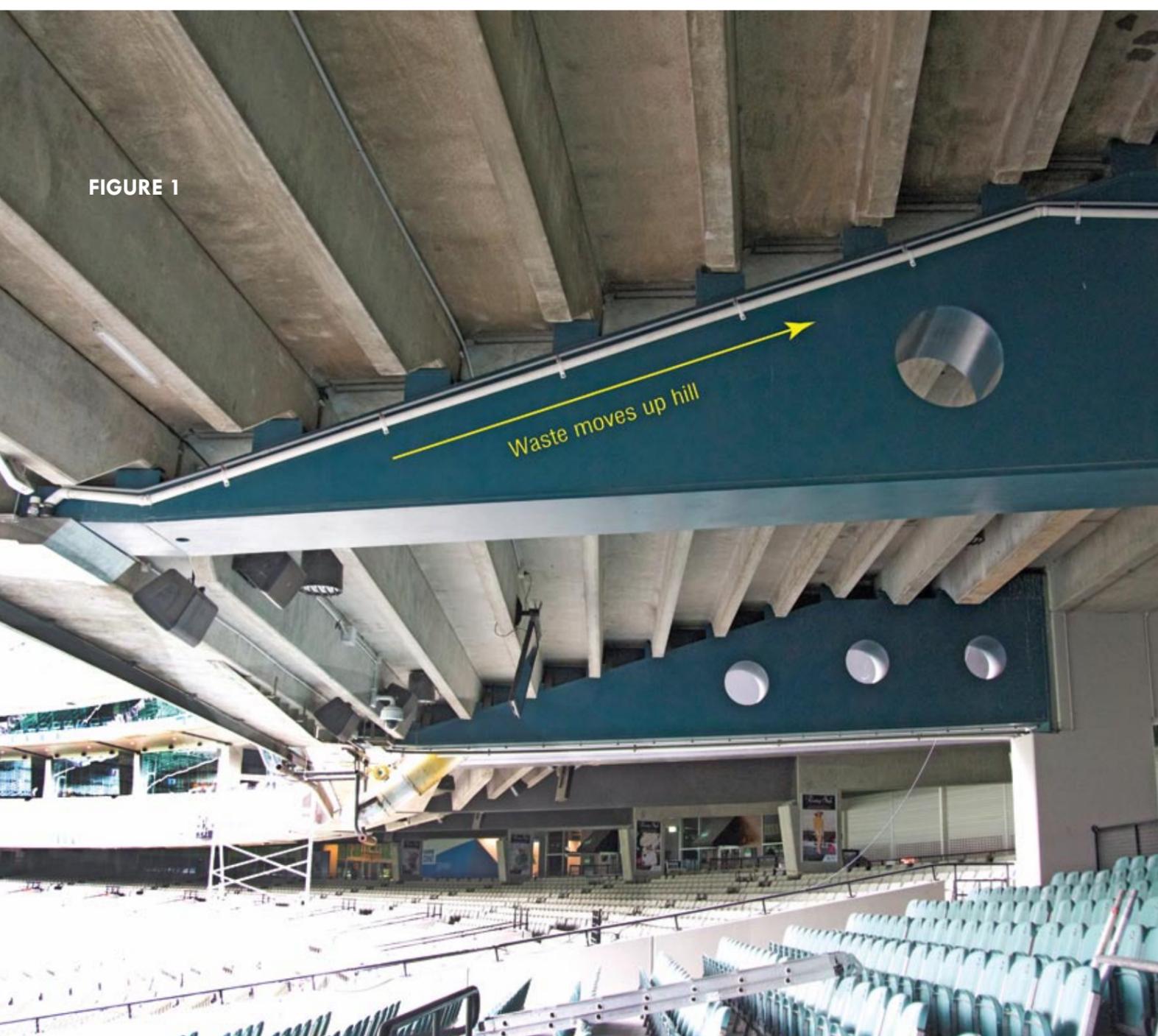


FIGURE 1

## DRAINING THE MCG

**Gravity can give mixed results when it comes to standard drainage.** For the MCG Great Southern Stand it was not enough to adequately drain the seating plats, which meant rain and spilled drinks frequently ended up on the heads of people sitting in the lower levels. Avac Australia provided the solution, with a state-of-the-art vacuum drainage system.

The seating plat drainage system also has to cope with quite significant flows during washdown after events, but due to the high content of food and drink waste that goes along for the ride, this water must be treated before it enters the stormwater system.

Traditional downpipes wouldn't work for draining either rain and drinks or washdown water, as they block the view. And putting pipes into the slabs would have required major works.

Avac's system pulls the waste water back upward and transfers it to the grandstand core. The system features a PLC controlled vacuum centre and electronic field equipment, which monitors and controls the drainage in response to conditions in the plats.

From a construction point of view, Avac's system was a real winner, by providing a solution which minimised construction cost.

"Vacuum plumbing has several major advantages over gravity plumbing and waste systems, most of which can translate to cost savings. Virtually any building requiring drainage can realize construction, and operational cost savings through a range of features unique to vacuum plumbing," said Avac spokesperson, Marc Buman.

"The first of these features is flexibility. At the MCG Avac were able to route the gravity drainage lines and around obstacles with ease.

"Vacuum can pull water up a hill (see figure 1). Because downpipes were out and other alternative drainage systems were not capable of pulling water uphill, a vacuum drainage solution was implemented. Avac's system brings light rain and washdown water back upwards by as much as 5 meters. It is then sent to a vacuum plant room whereby depending on conditions is diverted to sewer or stormwater." The other positive result is users of the Grandstand will not have to wear whatever the people above them have spilled!

Avac Australia Pty Ltd is an Australian company that pioneered the use of land based vacuum drainage system in Australia and New Zealand in the 1990's. Previously, these systems had only been used for marine vessels and airplanes.

The Avac solution minimises the use of fresh water for toilet flushes, their AcornVac vacuum toilet for example uses just 1.9 litres per flush. This in turn contributes to a smaller water and sewage footprint for any building, improving the overall environmental credentials of any project for the long term.

Avac's versatile plumbing system also has benefits for designers and builders, as it offers far greater flexibility for piping layout for the drainage component of any hydraulics system, including grey water and sanitary sources. The systems can also be used for draining condensate from sources such as HVAC equipment.

The company's expertise and knowledge can deliver a state-of-the-art, reliable, cost effective and versatile plumbing system that is engineered to fit almost any building type, including new construction, retrofits, refurbishments and redevelopments. Because the pipework does not rely on gravity to function, the layout of the pipes can be more easily designed for incorporation into existing structures, without extensive and expensive structural modifications.

Other recent Avac projects include the Gatton Correctional Centre and Lotus Glen Correctional Centres, where the company installed vacuum drainage combined with the world's first full water management package. This will not only dramatically save energy and water in the long-term, but also reduced the project's construction time frames.

Avac design, engineer, manufacture and market a range of environmentally friendly plumbing and waste collection, conveyance and disposal systems suitable for projects across the commercial, health, education, recreation, industrial, residential and government sectors. They have recently opened a state of the art Vacuum Training Testing and Demonstration Centre in Brisbane which showcases their technology and allows potential clients and users to explore its practical and financial advantages.

For more information contact Avac Australia Pty Ltd, phone 1300 123 451, website [www.avac.com.au](http://www.avac.com.au)



## POWERING AN ICON WITH PRIDE



Highly experienced management combined with extremely skilled tradesmen makes Road Runner Electrics (RRE) an extremely switched-on operation. At the MCG Great Southern Stand, they undertook the electrical refurbishment of all the function and corporate rooms on level 2, level 1 concession areas, entry gates four, five, six and seven and level B1 concourse area including the concessions and new AFL and Barassi function areas. Energy efficiency has been made a priority, including the installation of significant amounts of LED lighting.

RRE had a total of 30 staff on site, comprising site Manager Neil Graham, and a crew of 29 'A' grade electricians and 10 apprentices, all with first aid certificates, EWP licence, scissor licence, temporary construction wiring licence and confined space licence.

"Undertaking a project such as the MCG has its difficulties in coordinating works around sports events, cricket in summer and the major football season. All works undertaken need to be mindful of public access to certain areas on match days and to be mindful of minimal or no disruption to the daily operations of the MCG," said Road Runner Electrics Project Manager, Ziad Ghobril.

"We had to carry out a power shutdown within a time frame of five days. The existing main switchboards had to be decommissioned and removed, and the new main switchboards installed, reconnected and re-energised on the first floor level. To achieve this, a concrete block wall had to be demolished one level up to enable the works to proceed. The

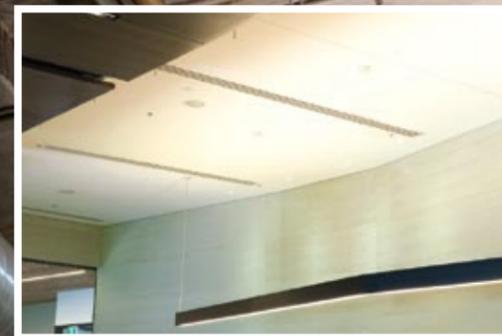
new main switchboards were then lifted in sections and re-assembled in place. "The crew working on the project have been handpicked by the project manager due to the high profile of this project and the fact that the MCG is a major icon of Melbourne. All of them are very proud to be there, and this is reflected in the dedication and quality of works that have been undertaken."

This dedication also allowed RRE to quickly resolve any glitches that occurred during works, while still achieving all milestones on time.

Other current RRE projects include Westfield Shopping Centres, the East Burwood Plaza and the new Sanctuary Lakes Shopping Centre; multi storey residential developments in Port Melbourne and the CBD; the new Masters' Trade outlet in Preston; and ongoing work for Coles, Woolworths and Aldi, both for new stores and ongoing maintenance and repairs.

Since being established by the three Directors in 1987, RRE has grown into a company with over 100 employees, providing a comprehensive range of electrical services across retail, residential, hospitality and commercial sectors around Victoria and interstate, using the best quality materials and guaranteeing the highest standards of work.

For more information contact Road Runner Electrics Pty Ltd, 79 Chifley Drive, Preston VIC 3072, phone 03 9484 8711, fax 03 9484 8600, email enquiries@roadrunnelectrics.com.au



## CLEVER GAME PLAN FOR A HVAC SYSTEMS SUCCESS

When thousands of excited footy fans are due to descend on your worksite, effectively managing the works program is essential. For PJM Engineering, the HVAC mechanical services contractors for the MCG's Great Southern Stand refurbishment, there was the added consideration that their contribution was a crucial aspect of key amenities.

PJM were responsible for the modifications of existing HVAC systems and installation of new ventilation, heating and air conditioning systems for the dining rooms, workshops, toilets, kitchens, food concessions and bar areas. The project was split into seven separable portions delivered over twelve months, to preserve a balance between stadium capacity and use and minimise disruption to staff, patrons and players at the iconic sporting venue.

One of the key tasks was the demolition and rebuilding of both the level 4A boiler plantrooms that provide all the heating for the Great Southern Stand.

"The central heating hot water plant has been upgraded to have a combined domestic hot water system and mechanical heating hot water system. The domestic hot water system will now be heated by heat exchangers connected to the heating hot water boilers, resulting in a far more energy efficient system," said PJM Engineering Project Manager, Laurie Felmingham.

"Approximately 40-odd 260 litre gas fired hot water units have been replaced by utilising the above system. Also, all the new air conditioning units, pumps, fans, boilers and chillers are fitted with variable speed drives and controlled via the building management system (BMS), to minimise energy consumption.

"The challenge with this project was the tight timeframes between each stage of completion, which required working in with all other associated building trades to attain the target dates for completion."

PJM's team on the project included welders, plumbers and duct fitters onsite, supported by the project managers, engineers and draftsmen in the PJM office.

Other recent major projects include Warrnambool Hospital; Austin Hospital in Heidelberg; Healthbridge Private Hospital in Hawthorn; CSIRO - Clayton Building 3 & 4; VUT, St Albans; Monash University Clayton; Aldi Frankston and Bundoora; Epworth Rehabilitation Hospital, Camberwell; Bunnings Mornington, Mill Park and Keysborough; Sails in the Desert Resort, Uluru; Airlie Beach Cannonvale Shopping Centre; Swinburne University of Technology, Hawthorn Campus; Mount Gambier Shopping Centre; Santos Moomba, South Australia; and Bridgehaven Shopping Centre, Craigieburn.

With over 30 years experience in their field, PJM have the expertise to tackle any type of project ranging from complex VRV split systems to central plant HVAC systems and large scale pipework installations. Based in Melbourne, the company has over 100 highly experienced staff including tradesmen, engineering staff, estimators and management, undertaking projects across Victoria, Queensland, South Australia and the Northern Territory.

For more information contact PJM Engineering, Head Office 10 Aristoc Road, Glen Waverley, Vic, 3150, Office phone 03 9560 3111 Managing Director: Phillip Meade 0413 624 100, Contracts Manager: Brad McAndrew, 0413 624 101, Estimating Manager: Jay Yau 0408 314 422



## A FINE FINISH AT THE MCG

With experience and the right products, anything is possible, as Dibs Painting have demonstrated at the MCG. Their team did all the exterior and interior painting for the Great Southern Stand refurbishment, including the basement, seating areas, concourse, concession areas and function rooms.

The task required a flexible approach, and an eye for quality workmanship, with an especially high expectation for the standard of finishes in the function rooms. All the products used were low-VOC, including a special granital grob textured finish used for the internal columns in the function rooms.

“Construction Engineering has been extremely efficient and good to work with,” said Dibs Painting Director, Hayden Dib. “We would like to thank

Construction Engineering and all their staff, especially Simon Barker, Greg Short and Rob Scarano. We would also like to thank Dulux.”

Dibs Painting can deliver all types of finishes and renders, including textured coatings and two-pack spray applications. Their safety-conscious team have comprehensive OH&S training, including the latest Working At Heights safety standards.

Founding Director Hayden Dib has been in the trade for 26 years, bringing a wealth of experience in industrial, commercial and residential painting to major projects across the Melbourne area and beyond.

**For more information contact Dibs Painting**, 74 Dawson Street, North Coburg VIC 3058, phone 0401 225 777, email [dibspainting@gmail.com](mailto:dibspainting@gmail.com)

The new entry areas of the MCG, Victoria

