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BUILDING EFFICIENCY

2010 EDITION



- > A year of innovation and sustainability
- > Royal Children's Hospital on target
- > NAB's mission critical fire upgrade goes without a hitch
- > Kangan Institute of TAFE energy savings up by 40%
- > Sydney's HSBC Centre heads for the stars
- > Building Energy Optimisation at Pacific Highway
- > ICAs Green Star outcomes
- > Tri-gen solutions reducing carbon emissions
- > Victoria's State Library goes green

FEATURED STORIES



A.G. Coombs
Together we achieve the extraordinary



A YEAR OF OPPORTUNITY THROUGH INNOVATIVE DELIVERY AND SUSTAINABILITY



RUSSELL
TELFORD
Managing Director

MANAGING
DIRECTOR'S
MESSAGE

Like other organisations, the A.G. Coombs Group faced challenges in the 2009/10 year associated with the tightened economic environment. Yet in the challenge we saw opportunity. Opportunity to consolidate and invest in the future for our clients, people and businesses. Opportunity to work more collaboratively with valued clients to deliver Whole of Life building services. Opportunity to deliver more responsive and innovative solutions to optimise building performance. As well as opportunity to further strengthen our technical expertise, multi-service capability and geographic presence in line with our long-term plans.

It is not surprising that this edition of Building Efficiency highlights our leading capabilities in delivering both innovative and sustainable building services solutions.

Industry leadership and innovation continues to be demonstrated across almost everything we delivered, ranging from collaborative PPP arrangements, performance warranted outcome agreements, Building Energy Optimisation Programs and integrated pre-fabrication strategies that provide significant cost savings and program reduction.

Sustainability and building efficiency has been an integral part of the Group's focus for several decades and this year was no exception.

It was pleasing to see successful outcomes being delivered for clients through our Carbon Roadmap[®] solution, Energy Performance Contracts and through our Green Star / NABERS accredited professionals. We have the proven track record, people, methodologies and tools to support our clients who are now reaping the rewards through measurable improvements in building performance.

Our ability to deliver innovative and sustainable solutions sets us apart in the market. It is driven by our high-level engineering and technical capability, which continues to facilitate more sophisticated solutions in service delivery. It is embedded in our culture of continuous improvement and the unwavering commitment we have to our quality people. We have continued to invest heavily in our people through the delivery of comprehensive training as well as maintaining a strong focus on talent attraction and career progression.

We strengthened our leadership position in safety by progressing our certification of SafetyMAP to the Advanced level as well as national certification to Australian Standard AS4801:2001. This was further demonstration of our ongoing commitment and industry leadership in being incident and injury free wherever we had a presence; across every part of our operation.

WHOLE OF LIFE BUILDING SERVICES

TECHNICAL
EXPERTISE

HVAC
MECHANICAL SERVICES
FIRE PROTECTION
HYDRAULICS
ELECTRICAL
BUILDING TECHNOLOGIES

Investment in our customer-focused growth strategy continued. Growth is creating opportunities for us to make an even bigger difference for our clients. This year clients had greater access to our technical expertise across a range of multi-services (HVAC, mechanical services, fire protection, hydraulics, electrical and building technologies) and across every stage of the building's lifecycle (from design, build, commission, maintain, operate and manage). Our Advisory business delivered quality advice across all of these disciplines in the Whole of Life service offering, including Green Star Independent Commissioning Agent (ICA) services for projects requiring Green Star 'As Built' Certification.

The maturing of our comprehensive range of service offerings has enabled us to confidently consolidate our presence in locations such as NSW and the ACT. We are committed to providing consistent service to our national clients everywhere they operate.

Despite the tightened construction market, our Projects business continued to grow on the back of some large projects. The business has an established National Centre of Excellence which ensures that clients continue to receive the highest quality of project delivery including project management and technical capability regardless of location.

The Service business also grew through both existing and new clients. The business delivered services efficiently in both CBD and outer metropolitan regions, and to buildings with unique requirements such as the State Library of Victoria.

Walker Fire Protection delivered some critical projects this year including the National Australia Bank's data centre and has a strong pipeline of work such as the Hamer Hall redevelopment. The business continued to deliver high-end engineering and technical advice through to design, installation and servicing of all types of fire detection and suppression systems.

One of the highlights this year was the growth in Integrated Technical Management. The business renewed significant contracts with existing clients and provided technical facilities management services to a growing range of new clients. Clients are able to access the technical capabilities existing right across the A.G. Coombs Group.

Our point of difference continues to be our unique breadth of building services and the incredible work performed by our talented people every day. Looking ahead we are confident the A.G. Coombs Group is well positioned to continue delivering both innovative and sustainable building services outcomes for our valued clients well into the future.

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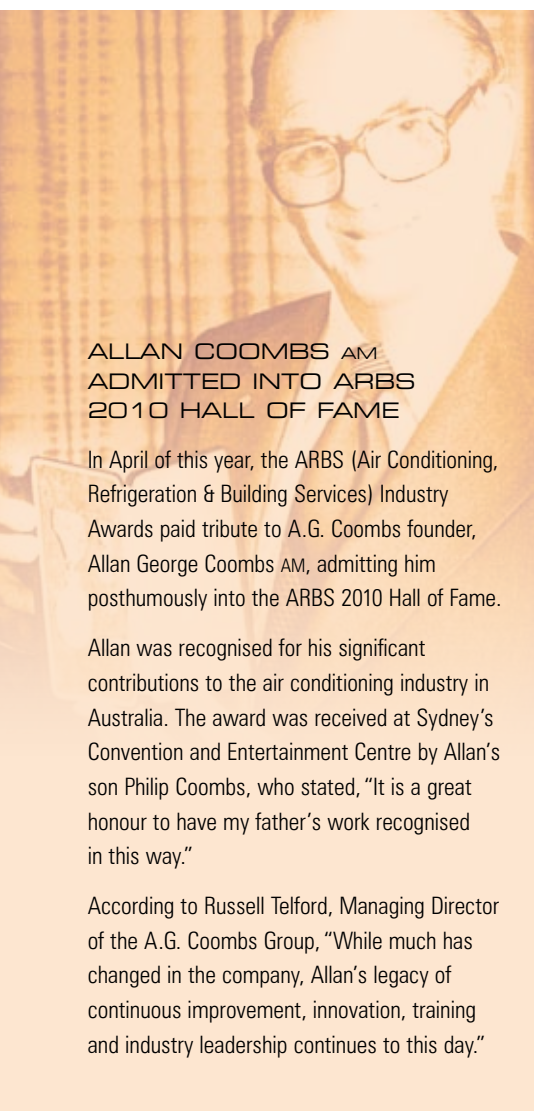
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INNOVATIVE DELIVERY



ALLAN COOMBS AM ADMITTED INTO ARBS 2010 HALL OF FAME

In April of this year, the ARBS (Air Conditioning, Refrigeration & Building Services) Industry Awards paid tribute to A.G. Coombs founder, Allan George Coombs AM, admitting him posthumously into the ARBS 2010 Hall of Fame.

Allan was recognised for his significant contributions to the air conditioning industry in Australia. The award was received at Sydney's Convention and Entertainment Centre by Allan's son Philip Coombs, who stated, "It is a great honour to have my father's work recognised in this way."

According to Russell Telford, Managing Director of the A.G. Coombs Group, "While much has changed in the company, Allan's legacy of continuous improvement, innovation, training and industry leadership continues to this day."

ROYAL CHILDREN'S HOSPITAL PREPARES TO TAKE ITS NEXT STEP

The new Royal Children's Hospital is just over one year away from opening. The construction phase is coming to a close, with the teams set to open the doors to the one billion dollar plus, 190,000sqm establishment on time.

This year has been one of remarkable progress for the new Royal Children's Hospital.

As part of the Bovis Lend Lease design and construction team, A.G. Coombs is providing the complete air conditioning and mechanical services, including the installation of specialist hospital systems. A.G. Coombs also formed a joint venture partnership known as 'RACAH' with A.E. Smith & Son to deliver Stage 1 of construction.

A.G. Coombs has been working closely with Bovis Lend Lease to construct the innovative new facility. The design incorporates a wide variety of technologies – from chilled beam air conditioning through to tri-generation energy plant and a bio-mass boiler.

As well as the challenges associated with the sheer size and scope of works, other challenges have arisen from the unique design process and other project requirements that are central to the hospital's core functions.

Understandably, there is a specific level of cleanliness required when installing systems for an acute hospital environment. There is also a myriad of complex and unique systems and equipment to consider, including specialist medical gas and pneumatic tube delivery systems. Specific areas require customised equipment, including laminar flow cabinets and fume and bio-hazard cupboards. There has also been an ongoing need for high-end mechanical design for areas such as clean rooms, Physical Containment Level 2 (PC2) laboratory space, X-ray and operating theatres, cancer treatment wards and MRI areas, which require specific air conditioning and process cooling systems.

Despite these complexities, A.G. Coombs together with the 200 plus RACAH team remains on track to finalise installation work by the end of 2010, before moving into an intricate commissioning phase.

The project has promised to deliver one of Australia's greenest hospitals, with the team providing critical advice on environmentally sustainable solutions including the installation of:

- active chilled beams – to enable energy efficient, low air movement space conditioning
- natural gas fired tri-generation energy plant including absorption chillers and 600,000 litres of chilled water storage

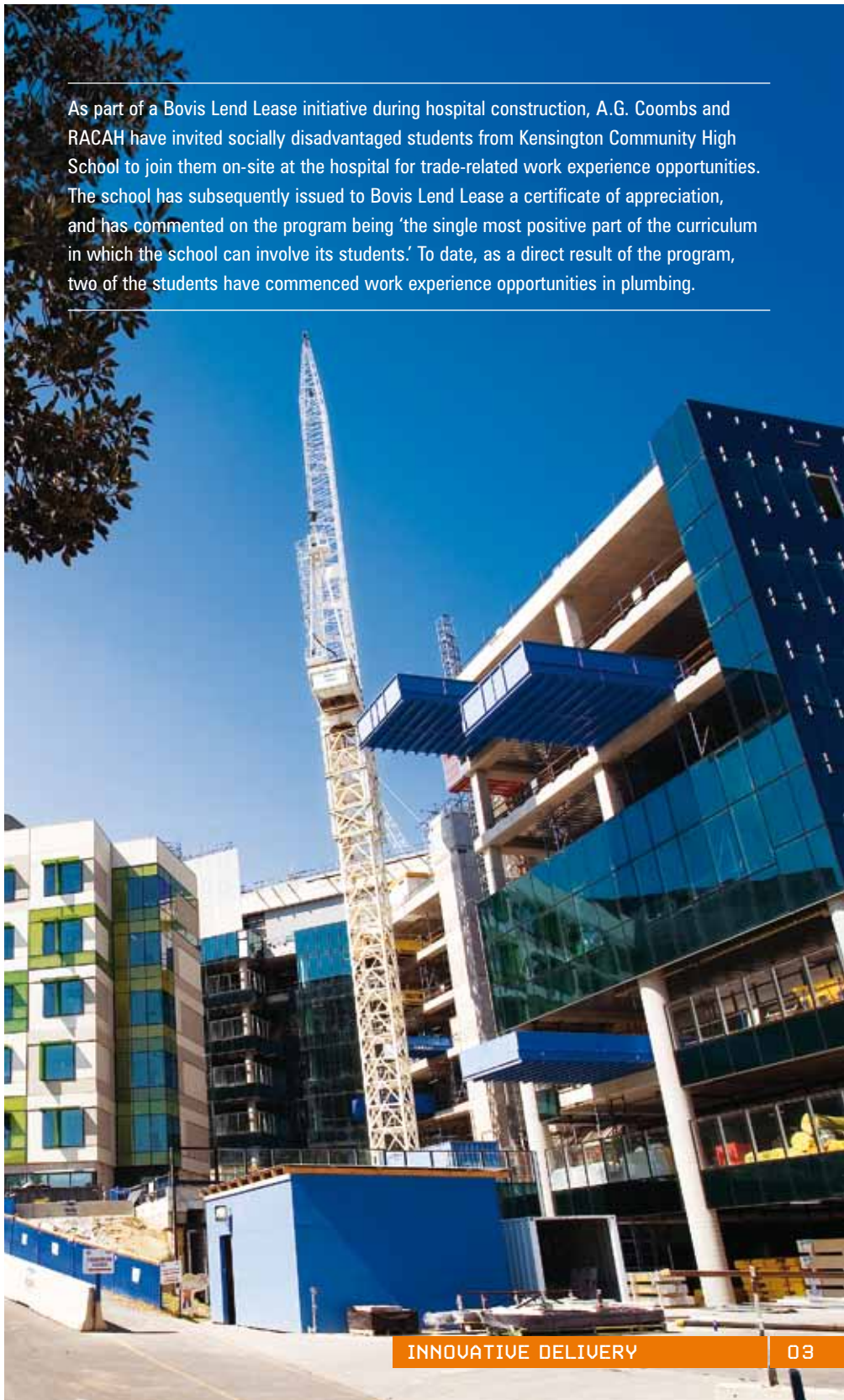


- bio-mass boiler – the first installation of its kind in Australia, enabling carbon emission reduction through the burning of timber waste by-products to produce heating hot water for the facility
- specialist heat recovery air conditioning units
- Variable Speed Drives (VSDs) on fan and pump motors throughout the facility; and
- low temperature high efficiency condensing boilers.

Working in conjunction with Bovis Lend Lease, the team has also assisted with the detailed coordination of electrical, fire and hydraulic requirements and some architectural requirements. The pre-fabrication strategy initiated by A.G. Coombs has measurably reduced the time and manpower spent on-site and respective costs to Bovis Lend Lease.

“We are extremely happy with A.G. Coombs and RACAH,” said David O’Shaughnessy, Project Director at Bovis Lend Lease. “Not only are they first-class providers of air conditioning and mechanical services, but their ability to input into overall design and their proactive approach to managing the broader program and associated issues has highlighted their standing as one of the leaders in the industry. Bovis Lend Lease is extremely happy with their performance as a BLL partner in delivering a consistently high standard to arguably one of the most complex PPP projects undertaken to date.”

As part of a Bovis Lend Lease initiative during hospital construction, A.G. Coombs and RACAH have invited socially disadvantaged students from Kensington Community High School to join them on-site at the hospital for trade-related work experience opportunities. The school has subsequently issued to Bovis Lend Lease a certificate of appreciation, and has commented on the program being ‘the single most positive part of the curriculum in which the school can involve its students.’ To date, as a direct result of the program, two of the students have commenced work experience opportunities in plumbing.





"Having Walker Fire Protection as the single point of accountability – from advice through to design and construction – has ensured a smooth transition from the old to the new fire system. We are extremely happy with the outcome, and the technical expertise demonstrated by Walker Fire Protection across the entire process."

David Brooke, Facilities Manager, UGL Services

MISSION CRITICAL FIRE UPGRADE

Walker Fire Protection has completed a major upgrade of the fire detection system at the National Australia Bank's (NAB's) principal data centre facility. The facility is mission critical for NAB, providing electronic processing of its customer account transactions. The upgrade was successfully implemented while the facility remained live.

UGL Services, the data centre's Facility Managers, approached Walker Fire Protection to provide the end-to-end fire protection upgrade service. To ensure the resulting installation met NAB's fire protection needs, a complete turn-key solution was delivered comprising advisory, design, installation and commissioning services.

Walker Fire Protection first provided detailed advice in relation to the advantages and disadvantages of different technologies and system configurations, and then designed the system in collaboration with UGL Services.

The system design had to accommodate high levels of complexity surrounding the live site and NAB's specific installation requirements. It was imperative the solution ensured no disruption to the data centre's activities during the installation and changeover phases.

The old conventional Fire Indicator Panel (FIP) was progressively replaced by six 'smart' networked addressable FIPs, distributed throughout the site. This approach was cost effective and provided significant system redundancy, minimising the risk of complete system failure.

The existing VESDA® aspirated smoke detection systems, located in the data halls, and critical supporting facilities were upgraded and augmented to provide improved early detection and system reliability. In addition to installing new detectors and sampling pipe, the upgrade included the provision of reference detection and networking between all VESDA® detectors. The reference detector minimises the potential for false alarms in the high sensitivity detectors due to external airborne contamination such as dust and bushfire smoke.

The critical nature of the site, coupled with NAB's specific system standards, drove particular project requirements. Steel conduit was used in place of the usual PVC, making the system more robust. Also, extensive labelling and operational signage for all fire protection equipment was designed and installed, in line with NAB's business continuity planning. This helps to ensure that the new systems are well maintained and tested and, most importantly, are effectively operated in the event of fire.

"Having Walker Fire Protection as the single point of accountability – from advice through to design and construction – has ensured a smooth transition from the old to the new fire system," said David Brooke, Facilities Manager of UGL Services. "We are extremely happy with the outcome and the technical expertise demonstrated by Walker Fire Protection across the entire process."

INNOVATIVE SERVICE DELIVERY LEADS TO SIGNIFICANT ENERGY SAVINGS

Kangan Institute of TAFE's contract for plant and equipment maintenance and services has been a key driver of sustainability. To date, Kangan Institute has achieved up to 40 per cent in energy savings across all six campuses.

The plant and equipment requirements of a 6-campus, 37-building Institute of TAFE are unsurprisingly complex. Such a portfolio requires commitment, professionalism and innovative service delivery to achieve building optimisation. On-site technicians need to work proactively to maintain the sites. Systematic scanning, testing and checking of plant functionality all contribute to the achievement of optimum building performance.

In the last 12 months, A.G. Coombs has contributed significantly to Kangan Institute's 15-40% energy savings across all six campuses.

As selected provider, A.G. Coombs Service is using innovative field service technology, including the use of handheld PDAs. Information relating to the work is directly despatched to the technicians via A.G. Coombs' National Customer Service Centre, to enable a fast and effective response to all work requests and associated issues. The technology solution is saving Kangan Institute significant time and cost, and enables consolidated and comprehensive electronic reporting.

Kangan Institute wanted to understand the condition and projected lifecycle of its complete plant and equipment portfolio. A comprehensive condition audit and asset report provided by A.G. Coombs helped with identifying and fully detailing all plant and equipment, addressing age, condition, anticipated service life and replacement value. The report has been an excellent and valuable tool for determining plant and equipment replacement and upgrades, which has supported Kangan Institute's capital development planning and submissions.

A key finding was the number of identified assets that currently rely on R22 refrigerant. For more than four decades, the R22 has been widely used in small and packaged air

conditioning equipment, and is now to be phased out in Australia by 2016 owing to its ozone depleting potential. The asset report presented a detailed forecast of life expectancy and projected replacement costs across Kangan Institute's entire range of R22 equipment. The report recommended a detailed replacement plan for new plant or replacement refrigerants with zero ozone depletion and minimal global warming potential. It has also enabled Kangan Institute to develop long-term budget forecasts that consider the inevitable phase out and replacement process.

A.G. Coombs' Advisory experts also completed a thorough on-site audit of all existing equipment to identify where greater energy efficiency could be achieved. Results and recommendations for improvement were documented in sustainability reports. Recommendations included a wide range of initiatives, from the changing of lighting systems through to replacing aged air conditioning equipment and installing sun shading and other building modifications.

The reports are an important tool for Kangan Institute's decision-making in relation to plant upgrades, building refurbishments and funding submissions related to improving building sustainability. In the last 12 months, A.G. Coombs has contributed significantly to Kangan Institute's 15-40% energy savings across all six campuses.

"Since the first day of the contract A.G. Coombs approached this challenge with outstanding vigour and enthusiasm... I am extremely satisfied with the performance of A.G. Coombs in their service interpretation, application and professionalism and believe it would be very difficult to source a company at present who could deliver a higher level of service, commitment and innovation."

Philip Dixon, Manager, Facilities & Capital Development
Kangan Institute of TAFE



A.G. COOMBS WINS ARBS EXCELLENCE AWARD

Earlier this year, A.G. Coombs Service was announced as winner of the ARBS (Air Conditioning, Refrigeration & Building Services) Excellence Award for most "Outstanding Service and Maintenance Provider."

Every second year, the ARBS Industry Awards recognise achievements made in the Australian air conditioning, refrigeration and building services industry. In 2010, A.G. Coombs Service was recognised nationally as the most outstanding service and maintenance provider.

Incorporating case study information and a number of client endorsements, the award submission outlined A.G. Coombs' outstanding delivery of air conditioning, mechanical services, building technologies and multi service maintenance offerings. These services are delivered to a wide range of facilities including emergency services 000 call centres, mission critical sites such as data centres and acute care hospitals, major shopping centres, automotive and pharmaceutical manufacturing plants, commercial office portfolios, universities and TAFE colleges, libraries, art galleries, and performing arts venues.

Supporting endorsements were provided by clients including the Emergency Services Telecommunications Authority, Kangan Institute of TAFE, BP Australia and Knight Frank. A representative customer testimonial stated that "There is one organisation establishing impeccable service standards and raising the bar throughout the industry, that company being A.G. Coombs."

arbs 2010



ENERGY PERFORMANCE CONTRACT UPGRADE TO SYDNEY'S HSBC CENTRE

Work is well underway in a significant project to upgrade GPT's 580 George Street location to deliver substantial carbon reduction initiatives and bring the building to a better than NABERS 4 Star Energy rating.

As the pressure to reduce the carbon footprint of Australia's existing buildings increases, interest grows in using Energy Performance Contracts (EPCs) as a practical and relatively low risk method to upgrade buildings for guaranteed energy performance outcomes.

As the leading global real estate organisation in the international Dow Jones Sustainability Index, the GPT Group has employed an EPC framework to substantially reduce energy usage in its iconic 580 George Street building. Following a competitive tender process, A.G. Coombs was appointed to the role of Energy Performance Contractor. This role involved delivering a broad scope of upgrade works to result in guaranteed energy cost reductions and a 4+ Star NABERS Energy rating.

Changes to the building include substantial mechanical plant and air conditioning system upgrades, lighting system enhancements and a new state-of-the-art Building Management and Control System (BMCS). The BMCS

incorporates comprehensive energy metering and reporting capabilities, including a real time energy performance dashboard. These works affect every level of the fully occupied building, requiring careful project management and close communication with the building's Property Manager, Jones Lang LaSalle (JLL), and the major tenants including anchor tenant HSBC.

The multi-million dollar upgrade has an installation phase of 11 months, followed by a 6 month building optimisation and monitoring phase and a 12 month measurement and verification period.

580 George Street is currently projecting a carbon emission reduction equivalent to 460 cars being taken off the road.

"Whilst such a project is challenging, especially in an EPC, undertaking complex multi system works in occupied buildings without disrupting the tenants is one of A.G. Coombs' specialities," said A.G. Coombs Project Manager Craig Walter. "The implementation phase is set for completion ahead of schedule and will meet client requirements," he added.

"Working with A.G. Coombs on the EPC has proved to be a great partnership," said Rebecca Cleary, Capital Works Manager at JLL. "The depth of experience within the A.G. Coombs organisation – from the design office through to

the site team – has supported a smooth project delivery, as we tackle a range of challenging issues that are part of rolling out this highly technical project in a fully occupied building."

As part of project delivery, A.G. Coombs implemented a best practice construction Environmental Management Plan (EMP) to minimise the environmental impact of the upgrade. The EMP has already achieved impressive results, with approximately 83 per cent of surplus materials being sent to recycling streams and significant components targeted for reuse.

The 580 George Street building, owned by the GPT Wholesale Office Fund, is currently projecting a carbon emission reduction equivalent to 460 cars being taken off the road. The building is heading towards at least a 4 Star NABERS rating, with a potential to increase this to 4.5 Stars.

According to Bruce Precious, Sustainability Manager at GPT, "A.G. Coombs has provided technical capability for this project entirely in-house through the close integration of its Advisory and Projects business units. This well-managed expertise aids with mitigating risk for GPT, as well as for JLL and the tenants."

SUSTAINABILITY

A.G. COOMBS OPENS NEW CANBERRA OFFICE

Following several decades of excellent service delivery in the ACT, strong ongoing client support has led to the establishment of a new A.G. Coombs Group Canberra facility.

The launch of the new office has been driven by a significant increase in client demand for major Project work, continued growth in the strong base of Integrated Technical Management contracts and an increasing requirement for Advisory services. Clients are keen to leverage A.G. Coombs' coordinated and consolidated approach to service delivery that is providing something unique in the Canberra market.

Located in Allara Street on the southern edge of Canberra City, the new office is not far away from the Parliamentary triangle that plays host to many of A.G. Coombs' Canberra-based clients. One such site is the heritage listed

John Gorton Building, home to the Department of Finance and Deregulation and the Department of the Environment, Water, Heritage and the Arts. A.G. Coombs was involved in the major refurbishment of the building in the 1990s. Integrated Technical Management continues to provide lifecycle maintenance services to both the John Gorton Building and the nearby Treasury Building, helping to ensure the quality of the indoor environment and compliance with regulatory and environmental standards.

In September this year, local and interstate clients, industry partners and senior government representatives were invited to attend the opening of the office, to join the A.G. Coombs' team in celebrating what is a key milestone for the A.G. Coombs Group.



MAKING THE BEST OF WHAT YOU HAVE: BUILDING ENERGY OPTIMISATION

In seeking to improve the environmental performance of their buildings, owners of existing properties are now looking to tune their building systems to use less energy as a first step, before undertaking expensive upgrade work. They are finding that this often delivers significant improvements at a relatively low investment.

A.G. Coombs is working with a number of Australia's largest institutional property owners to optimise energy performance in their building portfolios, through a sophisticated program of building systems tuning and ongoing energy efficiency maintenance strategies. Generally these programs result in between 1 and 1½ NABERS Energy Star improvements in retained ongoing building energy efficiency. In some, exceptional circumstances have seen improvements of over 3 Stars.

A.G. Coombs' Building Energy Optimisation Programs focus on modifying strategies within the existing building automation and control systems, to better control air conditioning, lighting and other power-consuming systems. Buildings are tuned to best match the requirements of their occupants whilst minimising energy consumption year round. This program is typically carried out over a period of 24 months or two complete seasonal cycles, and follows on from a detailed review of the building and its operations. The review identifies how the building should operate and what changes are required. An iterative program of adjustment is implemented together with a comprehensive reporting regimen. Out of the optimisation process, an ongoing strategy of energy efficiency-focused maintenance and regular checking is put in place

to ensure that once improved energy ratings are retained or even further improved.

Improving the performance of existing systems and making them the best they can be is becoming the sensible first option for reducing the carbon footprint of buildings. Usually, it is also the most cost effective, with costs typically paid back in 12 to 18 months. These programs often result in improvements in system reliability and, importantly, in internal conditions, both contributing to improved tenant satisfaction.

100 Pacific Highway was one of the first major office towers in North Sydney designed to achieve a NABERS Energy rating of 4.5 stars. In an effort to achieve this target, building owners ISPT enlisted the help of A.G. Coombs' Building Energy Optimisation experts.

Following an initial audit and a detailed review of the building operations, a program of initiatives that considered the building dynamics as a whole was proposed and implemented. The program had a specific focus on control strategies and the refinement of the existing systems.

"A.G. Coombs has a demonstrated ability to understand how the energy consuming services in a building should operate to provide optimum conditions for the occupants, whilst consuming



the minimal amount of energy. This has seen them make significant contributions to building energy optimisation programs directed towards improving the ISPT Portfolio NABERS star ratings", said David Pullan, Portfolio Manager Strategic Projects at ISPT. "Partnering with A.G. Coombs to assist us with meeting our strategic energy efficiency goals has delivered outstanding results to the benefit of our tenants and ISPT Super Property", he added.

100 Pacific Highway has completed the first 12 months of its 24-month energy optimisation period and is currently performing at a level equivalent to a NABERS 4.5 Star energy rating. A.G. Coombs has been appointed as maintenance contractor to ensure continuing optimal building performance.

ISPT aims to have its portfolio of properties at a weighted average NABERS Energy rating of 4.5 stars by 2011.

Beyond June 2011, the ISPT Core Fund is targeting a weighted portfolio average of 5.0 star NABERS Energy and Water Ratings through a combination of major refurbishments, new developments, co-generation and tri-generation retrofits and green power purchase.

To date, A.G. Coombs has audited over 45 ISPT properties and is pleased to be working with ISPT to reduce the carbon footprint of its buildings.

A.G. COOMBS WELL PLACED TO MEET GROWING CLIENT DEMAND IN NSW

A.G. Coombs' office in Newington, New South Wales, is continuing to aid the delivery of optimal outcomes for an increasing number of New South Wales clients.

A.G. Coombs (NSW) continues to witness a steady growth in local demand, with clients leveraging full use of the A.G. Coombs Group capability in projects, service and advisory.

Property group ISPT has engaged A.G. Coombs in implementing a Building Energy Optimisation Program (BEOP) for a number of its significant

Sydney properties including 363 George Street, 345 George Street and 477 Pitt Street. BEOP is an innovative approach to tune a building's energy systems using the Building Management and Control Systems (BMCS) and high level retro commissioning strategies. These appointments follow on from earlier success at ISPT's 100 Pacific Highway location that currently performs at the desired 4.5 Star rating level.

Earlier this year, A.G. Coombs commenced work on a major Energy Performance Contract (EPC) for the GPT Group's iconic 580 George

Street Sydney building. This EPC incorporates a comprehensive BMCS upgrade, HVAC plant and system enhancements and lighting controls to achieve a reduction in greenhouse gas emissions. It is currently anticipated that this will be completed ahead of schedule.

These appointments add to a diverse range of maintenance contracts for clients that are enjoying the benefits of A.G. Coombs' high technical standards and leading approach to customer service.

ICAs PROVE VITAL TO ACHIEVING GREEN STAR OUTCOMES

The Green Star 'As Built' rating system, created by the Green Building Council, has provided a much needed sustainability framework for the Australian building construction industry. A critical part of this system is the role of Independent Commissioning Agent (ICA), which significantly influences the sustainability outcomes of a project and the ease with which they are achieved.

ICAs are engaged as part of a wider strategy to 'assure' the achievement of targeted Green Star sustainability outcomes. Importantly, they support project design, construction and commissioning teams in delivering the project within the Green Star compliance framework. To be effective, the expert ICA needs a detailed understanding of all building systems, how they integrate and work together and a strong appreciation of the whole project delivery process. This expertise is necessary to provide a high value end-to-end service from design through to operation.

A.G. Coombs Advisory Pty Ltd is Australia's leading provider of Green Star ICA services for projects requiring Green Star 'As Built' Certification. Involved early with the Green Building Council of Australia (GBCA) in formulating the ICA role, A.G. Coombs has

A.G. Coombs Advisory was appointed as ICA during the design phase to assist in achieving these ratings.

The building is set to achieve 70 per cent lower greenhouse gas emissions compared to industry average performance benchmarks, generating much of its own electricity using on-site natural gas-fired tri-generation plant, solar cells and wind turbines. In addition, the new facility will use about 50 per cent less potable water than typical Australian commercial buildings utilising both black water recycling and storm water harvesting. Innovative building systems also include an air conditioning system that uses cooling water from the adjacent river, low energy lighting systems and a sophisticated Building Management and Control System, all contributing to reducing the building's environmental impact.

"We have made full use of A.G. Coombs Advisory's capability as a dedicated, single point of focus to manage and assure sustainability targets. This has significantly helped us – as design and construction partners – to achieve the desired sustainability outcomes."

Craig Watson, Commissioning Manager, Bovis Lend Lease (BLL)

refined its ICA methodology through its involvement with some of Australia's most iconic green building projects. While meeting the requirements of the sustainability assurance system, A.G. Coombs' ICA approach also adds considerable value to projects by bringing design and construction experience to support project teams through each stage of the building delivery process.

The ICA approach has recently been deployed by a leading Australian bank. One of the bank's major sites has achieved a 6 Star Green Star Office Design rating from the GBCA, with the project aspiring to two additional Green Star categories – Office Interiors and Office as Built.

In delivering this enormously complex building, the appointment of an experienced ICA provided a pivotal link between all stages of the project, enabling all teams to have a shared and consistent understanding of the building's sustainability targets and how they were to be achieved. This facilitated a smooth transition from design to construction, through the critical commissioning phase and into full occupancy and operation. All involved in the project were working together to achieve the same outcomes.



"At the time A.G. Coombs was appointed as ICA, there were few organisations experienced in offering this service," said Craig Watson, Commissioning Manager, Bovis Lend Lease (BLL). "We appointed A.G. Coombs based on their ability to provide support across the entire complex project program cycle. We have made full use of A.G. Coombs Advisory's capability as a dedicated, single point of focus to manage and assure sustainability targets. This has significantly helped us – as design and construction partners – to achieve the desired sustainability outcomes."



TRI-GEN THE NEW GEN SOLUTION

The potential to significantly reduce the carbon emissions of electricity supply using tri-generation systems has seen A.G. Coombs recently install these systems in hospitals and large commercial buildings, for food, pharmaceutical and automotive manufacturing organisations as well as large data centres.

Tri-generation is the simultaneous production of electricity and heating and cooling energy from a single fuel source. In buildings this usually means a natural gas-fuelled engine or turbine driving a generator, with waste heat from the plant being used to heat the building or converted into cooling water via an absorption chiller.

Tri-generation systems can also add to the built-in redundancy of the electrical supply and mechanical systems in a building, lowering the risk of failure and consequential business interruption. They can also be cost effective and lead to lower operational costs.

With the awareness that tri-generation can save significant tonnes of carbon emissions and potentially thousands of dollars each month, a growing number of organisations are considering this solution.

The data centre sector in particular is seeing the use of tri-generation systems as a key strategy to reduce risks. This is not surprising given rapidly rising energy costs and projections that data centre carbon emissions will exceed those of the airline industry by 2020. Recently, the tri-generation initiative was undertaken by a leading Australian bank at its primary data centre – the very first project of its kind in Australia.

A.G. Coombs completed the installation of the 2000kW tri-generation system at NAB's facility with the aim of reducing the data centre's carbon emissions by approximately 20,000 tonnes of CO₂ per annum, as well as providing a positive financial return.

There are significant risks involved in projects such as this, particularly given the size of capital investment and the requirement to install and commission the system within a live data centre environment. A.G. Coombs managed the risks effectively owing to its expertise and methodologies developed through the successful delivery of many complex projects in live data centre environments. Close communication with system designer, Umow Lai, and Facility Managers, UGL Services, was also pivotal to success.

A.G. Coombs completed the groundbreaking project without putting the bank at risk.

A.G. Coombs completed the installation of the 2000kW tri-generation system at NAB's facility with the aim of reducing the data centre's carbon emissions by approximately 20,000 tonnes of CO₂ per annum.

Conventional thermoelectric power stations convert only about one third of fuel energy, usually coal, into electricity. The rest is lost as waste heat. Further losses occur in transmission between the generator and where the electricity is used. The lower carbon intensity of natural gas compared to coal and the system efficiencies from heat recovery can produce up to a 50% reduction in the facility's operational carbon footprint.

The National Australia Bank (NAB) is making a significant commitment to the environment through its Carbon Neutral 2010 Program, with data centre-related carbon emissions targeted for particular attention. For the bank's primary data centre project, A.G. Coombs was selected as head contractor and installers, responsible for all construction, building works, plant and mechanical installation and electrical services. In addition, Walker Fire Protection provided the mission critical upgrade to fire detection and protection systems.

Trevor Moore, NAB's Sustainability Manager said "We are happy with the way such a high-risk project has been smoothly delivered. The seamless installation process ensured maximum operational efficiency from day one, helping NAB to stay on track with its carbon reduction targets."

The tri-generation project was delivered on budget and is on program to significantly reduce the NAB's carbon emissions.



A.G. COOMBS APPRENTICE WINS INDUSTRY TRAINING ACHIEVEMENT AWARD

High quality personnel are essential to deliver complex building services. A.G. Coombs prides itself on attracting, developing and retaining the best.

In August of this year, A.G. Coombs Service Technician Ben O'Brien was awarded the prestigious Air-Conditioning and Mechanical Contractors' Association (AMCA) Training Achievement Award for 2010. The Award is Ben's third, following his acceptance of the Allan Coombs Training Award in 2008, and Box Hill Institute's second-year Apprentice of the Year Award for Refrigeration and Air-Conditioning in 2007.

Ben's outstanding commitment to his apprenticeship enabled him to excel at every stage of his training, whereby he outshone a particularly strong field of award nominees. He has worked on a wide variety of equipment and systems in many different buildings during his apprenticeship, and is currently responsible for maintaining the HVAC plants at several client sites.

This AMCA award follows on from those won by A.G. Coombs apprentices in 2002, 2004 and 2008.



WHEN OLD BECOMES EFFICIENT: A SPLASH MORE GREEN FOR VICTORIA'S STATE LIBRARY

Six years ago, the \$197 million redevelopment of Victoria's State Library was completed. Today, the heritage facility is taking the next step in energy efficiency.

The Library, which was originally established on the Swanston Street site in 1856, occupies an entire city block of approximately 25,000sqm, and comprises 21 adjoined buildings constructed at various times over 150 years. The unique nature of this facility requires technically-skilled specialists to manage and maintain the on-site plant and equipment. Public access also needs consideration.

As one of the oldest buildings in Melbourne's CBD, the State Library requires high-quality maintenance of its assets including thermal and mechanical plant, water management and controls. Service technicians take ownership of all service delivery to meet a number of specific, non-standard service requirements and achieve optimum energy efficiency.

One critical area is the Library's collection storage areas. If not correctly preserved, valuable paintings, books, maps and other precious documents could be damaged and lose their value, potentially having a detrimental effect on the Library's solid reputation. As appointed maintenance services provider, A.G. Coombs has had to ensure that room temperature in the archive remains constant at 21 degrees Celsius, with scope for only a 1 degree fluctuation either way. In addition, relative humidity levels are kept at 50%, with only a 5% drift allowance each way.

Implementation of A.G. Coombs' Carbon Roadmap® process has provided the landmark facility with a complete review of its buildings to identify cost-saving and carbon reduction initiatives. It continues to provide a clear and warranted end-to-end pathway for reducing energy consumption and delivering ongoing Star ratings, from concept and design strategies through to installations and implementation.

The Carbon Roadmap® report generated a number of energy efficiency initiatives that have since been implemented at the Library. These include energy metering, the splitting of light time schedules and implementing an enhanced control strategy for a chilled water plant. The control strategy ensures that a constant and economical water temperature is maintained, rather than over-cooling which results in wasted energy consumption.

The State Library has already benefited from some earlier A.G. Coombs energy initiatives, one of which was improved time scheduling for Air Handling Units (AHUs) to control the supply of heating and cooling. Building and temperature settings have been reviewed by Library maintenance engineers and have been reset to avoid wasting energy while still preserving collection material and retaining comfort standards. As the Library operates seven days a week, these relatively minor changes have a significant impact. Over the past two years, A.G. Coombs has significantly contributed to the Library's total energy-saving achievements, including a decrease in electricity usage of 10% and in gas usage of 12%.

The State Library, as a major public institution, recognises the importance of achieving a reduced carbon footprint, and is passionate about the benefits to both the environment and its operation.

"We are very happy with A.G. Coombs' Carbon Roadmap® program and the significant energy savings our maintenance engineers have been able to achieve in conjunction with A.G. Coombs' expertise," said Margaret Ford, Building Facilities Manager at the State Library of Victoria. She added "The high quality of day-to-day mechanical services being delivered is helping to improve building operations, which leads to less wear and tear on our plant and technology and less downtime. Overall building efficiency and reliability is very good."

"We are very happy with A.G. Coombs' Carbon Roadmap® program and the significant energy savings our maintenance engineers have been able to achieve in conjunction with A.G. Coombs' expertise. Improvements that A.G. Coombs has implemented for us will have ongoing benefits for years to come."

Margaret Ford, Building Facilities Manager,
State Library of Victoria





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A SafetyMAP Certified Organisation



Safety through systems

Advanced Level

RAISING THE BAR IN SAFETY EXCELLENCE

A.G. Coombs' ongoing commitment to achieving optimal workplace safety was recently demonstrated through its safety system upgrade and certification.

A.G. Coombs recently upgraded its long-held SafetyMAP accreditation to Advanced level and achieved Australian Standard AS4801:2001 accreditation. This best practice safety system is embedded within all of A.G. Coombs' systems and procedures, to ensure the continued full integration of safety considerations into everyday processes, procedures, policies and standards.

Following a rigorous process, which included a gap analysis, a senior-level management review and an external audit, A.G. Coombs successfully achieved the SafetyMAP upgrade whilst ensuring the compliance of all systems and processes with AS4801:2001.

SafetyMAP (Safety Management Achievement Program) is a leading safety management system well established in Victoria. Australian Standard AS4801:2001 – Occupational health and safety management systems – is applied throughout Australia. Combined, this accreditation sees A.G. Coombs' safety management practices fully recognised throughout Australia, supporting A.G. Coombs' continuing growth throughout the country.

A.G. Coombs is currently the only company in the Victorian construction and property sector to achieve SafetyMAP Advanced status, and nationally one of the very few organisations that is certified to AS4801:2001, positioning the business as a true leader in safety management.



AS/NZS 4801
Certified

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A.G. COOMBS GROUP

The A.G. Coombs Group is a privately owned Australian group of companies that provides an integrated range of technical services for all systems in buildings, from design through to installation, commissioning, maintenance and ongoing operation and management. Operating for over 65 years, A.G. Coombs has a national capability with major operations on Australia's eastern seaboard.

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A.G. Coombs Service is a specialist provider of air conditioning, mechanical services, building controls and bundled services maintenance. Delivering 24/7 building support, the company is a preferred supplier to the Facilities Management Industry and provides professionally managed, highly qualified technical staff to achieve improved reliability, lower costs and regulatory compliance in commercial, retail and industrial buildings.

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