

# HINDMARSH DELIVERS LANDMARK PRECINCT FOR SCIENTIFIC EXPLORATION

The \$80M Chemistry Building, is the last stage of the \$240M Colleges of Science project at the Australian National University, Canberra.

MAIN CONSTRUCTION COMPANY : Hindmarsh  
PROJECT END VALUE : \$80 million  
COMPLETION : September 2013  
ARCHITECTS : Lyons



Science is all about innovation, a quality Hindmarsh Construction have certainly demonstrated on the Australian National University (ANU) Colleges of Science project. The fourth and final stage of the fourfold \$240M project, the \$80M Chemistry Building, is a showcase of collaboration, inventiveness and landmark sustainable engineering.

The Chemistry Building comprises three levels over two wings, North and South, and an existing four-level building which was refurbished by Hindmarsh as part of the construction scope. The total GFA of 11,650m<sup>2</sup> comprises research laboratories, instrument laboratories, NMR (Nuclear Magnetic Resonance) laboratories, Glass Blowing workshops, Electronic workshops, write up offices and general offices.

Lyons Architects' design for the highly geometric and striking building aimed to create a distinctive identity which reflects the cutting-edge nature of the work being undertaken across physical chemistry, biological chemistry and synthetic chemistry.

Under their Managing Contractor arrangement, Hindmarsh were able to fast-track the early design documentation and site works, and provide buildability and costing

feedback during the design process. Their expert input into buildability in particular enabled effective co-ordination, resulted in fewer variations and delivered a more maintenance-friendly facility for ANU.

"A major decision to demolish one building instead of refurbishing it enabled the sequence of construction to be altered, saving time and money and providing a more flexible future proof result," commented Hindmarsh Construction Project Manager, Gary Robinson. "The original completion date was 30th November 2013; Actual Completion was achieved on 12th August 2013 – 3.5 months ahead of schedule."

The distinctive façade consists of a number of elements, including Vitrabond panels with light-weight metal cladding installed behind them for waterproofing, and precast concrete panels formed with computer-aided manufactured moulds. The framed glazing of the facade is a laminated grade A safety glass. Structurally, the two new wings were built with post tensioned concrete floors and a reinforced concrete lift core, with roofing of structural steel. The concrete structure was designed to specific vibration damping criteria to control equipment and footfall vibrations – a critical requirement for sensitive experiments.

A multiplicity of sustainability initiatives around air, energy and water have been incorporated into the project, including a common manifold exhaust system connected to multiple fume cupboards, integrated with a thermal heat recovery system. Constructed ahead of Australian Standards, this is only the second installation of its type in Australia, the other being the ANU's Colleges of Science- Teaching building completed by Hindmarsh in 2011.

The Chemistry Building has a combination Natural Ventilation and Mixed mode air conditioning system which provides the occupants with the ability to utilise natural ventilation when the ambient conditions are suitable, with the A/C system featuring visual indicators ("traffic lights") mounted on ceilings to provide a system/occupant interface.

Solar hot water is being used throughout, a rainwater harvesting system was installed, and all the building's wastewater is reticulated to a Blackwater treatment plant, which recycles water within the Colleges of Science precinct. An innovative nitrogen generation system has been installed, which generates nitrogen from ambient air to supply the school's research and teaching labs. All of the building services

are connected to an independent Central Plant Building, which was constructed by Hindmarsh as part of the previous stages.

Hindmarsh had a team of 14 on the project, including Project Director, Project Manager, Services Manager, Services Engineer, Site Supervisors, Safety Supervisors and Contracts Administration. In total, the achievement for Hindmarsh, the consultant team and ANU is the completion of a vision which has been a work in progress since 2008, when Hindmarsh first commenced onsite constructing the Biosciences building (completed in June 2011), and concurrently constructing the Teaching Building (completed in Oct 2011) and Central Plant building (also completed in Oct 2011).

Collaboration between all the project stakeholders was key to the successful result. The high level of cooperation and teamwork extended to having staff from the project's design, project management and construction delivery teams, and also the client's representative, in the same office for the duration of the project. This enabled clear communication and swift resolution of identified risks or issues.

Hindmarsh have completed numerous complex and challenging projects related to the sciences, including health clinics, research facilities, commercial laboratories and educational facilities. Recent successes include the state-of-the-art Belconnen Community Health Centre, John Curtin School of Medical Research (ANU), the Science and Engineering Building for Griffith University Gold Coast Campus and the University of Western Sydney Medical School. Currently they are in the final stages of construction on South Australia's SAHMRI (South Australian Health and Medical Research Institute).

From offices in Canberra, Sydney, Adelaide, Darwin, Brisbane and Shanghai, the company works on projects across both construction and development as well as retirement services, parking operations and capital management. Having 35 years of experience in complex and demanding construction projects gives Hindmarsh an informed approach to innovations in design, materials, methodologies and sustainability which adds value to all the projects they undertake.

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## SURFACE PREPARATION AT ITS BEST

**ACT Concrete Restoration Pty Ltd is a Canberra based company that specialises in concrete surface preparation, floor levelling, epoxy coatings and flooring systems, polished concrete and concrete repair and protection.** The Managing Director, Andrew Ivers has worked in this specialised industry for 20 years and has brought a wealth of knowledge and experience to the company.

In March 2012, Hindmarsh Construction engaged ACT Concrete Restoration to carry out works related to the epoxy flooring package for the Chemistry Building, ANU. The works involved placement of a 50mm concrete topping to the Fire Laboratory and once cured, continuing with the polyurethane and epoxy flooring system to all 3 laboratories. Firstly, a 6mm trowel coat of Epimax 465 was placed onto a primed floor of Epimax 225. Aluminium arrowhead profile was installed to a height of 150mm and a rendered cove was installed consisting of Epimax 222 and blended aggregates. Two coats of Epimax 333WB followed with graded aggregate between coats to produce a R11 slip rating. On completion of these works, ACT Concrete Restoration was then engaged to carry out works on the adjoining, existing Birt Building. This involved the removal of existing epoxies and adhesives and the placement of BASF P15 levelling compound and T920 compound in readiness for vinyl floor coverings. The area involved was 3,000sqm.

ACT Concrete Restoration has been operating for 2 ½ years and in that time the company has successfully completed numerous other projects which include the following:

- **Parliament House ACT**  
This project involved the placement of 800sqm of a resin and epoxy based seamless flooring system to the Staff Kitchen and Main Production Kitchen for the builder, Isis Australia Pty Ltd. Manufacturer Epimax Australia CE Industries.
- **Royal Australian Mint ACT**  
The Royal Australian Mint engaged ACT Concrete Restoration to do rectification work and apply an epoxy flooring system to the Coin Production Room. Manufacturer Epimax Australia CE Industries.
- **Caroline Chisolm Centre, Centrelink Headquarters, Tuggeranong ACT**  
Brookfield Multiplex Constructions Pty Ltd engaged ACT Concrete Restoration to do surface preparation and levelling restoration works to all levels. Mapei Australia Pty Ltd manufactured products used for these works.

- **HMAS Harman Communications Facilities Canberra ACT**  
This project involved the surface preparation and levelling of 3,000sqm of floor area using products manufactured by Sika Australia Pty Ltd for John Holland Group Pty Ltd.
- **Time Square Building ACT**  
Construction Control Pty Ltd engaged ACT Concrete Restoration to do the surface preparation and light weight levelling to 650sqm of deflected floor area. Holcim Concrete Pty Ltd and Mapei Australia Pty Ltd are the manufacturers of the products used.
- **Hume Data Centre, Hume ACT**  
This project involved 2,000sqm of surface preparation and levelling to a rain damaged and deflected slab in preparation for vinyl floor coverings using products manufactured by BASF Australia Pty Ltd. Distributer CE Industries.
- **Intellicentre 4 Building, Canberra Airport ACT**  
Master Carpets Pty Ltd engaged ACT Concrete Restoration to supply and place speciality toppings and to polish and seal the Entrance and Foyer floors with epoxies and polyurethane for. Manufacturer Epimax Australia CE Industries.
- **Canberra University Student Central Refurbishment**  
This project involved surface preparation, levelling, concrete repair, polishing of concrete and epoxy sealing for the builder Manteena Pty Ltd and Master Carpets Pty Ltd.
- **Flynn Primary School ACT**  
Boss Constructions Pty Ltd engaged ACT Concrete Restoration to do 2,000sqm of surface preparation and levelling for Master Carpets Pty Ltd. Manufacturer BASF Australia CE Industries.

ACT Concrete Restoration is an accredited and a recommended applicator for Epimax Australia Pty Ltd, Sika Australia Pty Ltd, BASF Australia Pty Ltd and Mapei Australia Pty Ltd. Andrew Ivers takes pride that ACT Concrete Restoration, in its relatively short time of operation, can boast numerous satisfied clients.

**For more information contact ACT Concrete Restoration Pty Ltd,** Managing Director: Andrew Ivers, phone 0432 339 093, email [actconcreterest@optusnet.com.au](mailto:actconcreterest@optusnet.com.au)





## CREATING FLEXIBLE INNOVATIVE SOLUTIONS

**“I would not hesitate using Dynaflow in any future design and installation projects, especially, when a flexible innovative solution is required,”** said Geoff Deeble from the School of Chemistry, ANU. This is the type of client recommendation any company can be proud of.

Dynaflow Pty Ltd specialises in the design, manufacture, installation and maintenance of laboratory fume cupboards and specialised ventilation equipment in universities, research institutions and schools across Australia and in over 40 countries. It has a history of innovation which includes design awards and patents. Roy Rosario (Design), Henry Wong (Manufacturing) and Charles Jenkins (Project Installation and Commissioning) were the experienced management team involved in the ANU project.

In order to meet ANU’s requirements Dynaflow designed and developed a working prototype for the Chemistry Building, then manufactured, installed and commissioned 133 of the special fume cupboards it developed, together with the exhaust ventilation systems.

“This was the first ever project of this scale and complexity installed in Australia so it involved the typical challenges of cascading the special requirements of this project right through our own teams as well as the supply chain,” said Roy Rosario.

“The combination of a manifolded system and innovative cupboard design will reduce our energy requirement into the future, resulting in measurable saving in our operational expenses,” said Geoff Deeble.

“The final design meets all our goals and the final product provided a high quality, cost effective, innovative fume cupboard.”

Dynaflow is currently involved in the prestigious Charles Perkins Centre at the University of Sydney. The company’s completed projects include the Australian Biosecurity Institute (Menangle), the Australian Institute of Innovative Materials (University of Wollongong) and the first chemistry laboratory for the Chinese Government in Guangzhou.

“Every project has its individual design complexities but Dynaflow will always provide the best balance between compliance, safety, environment, user application and cost and this thinking is what has made Dynaflow the safest, and most positive choice for our highly esteemed and forward thinking clients,” says Roy Rosario.

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ANU - College of Science, ACT



## SETTING THE BENCHMARK FOR CONCRETING

**“PLACING CANBERRA’S FUTURE IN CONCRETE,”** is an apt slogan for Belconnen Concrete Pty Ltd. Founded in 1970, Belconnen Concrete is a family-owned company which has worked with all of the ACT’s leading builders on government, retail, hospitality, residential projects and commercial offices.

One key element that can put a project, such as the ANU’s Chemistry Building, on track to timely completion, is having a skilled outfit like Belconnen Concrete on site. The company provided coordination of concrete supply, pumping, placing and finishing for the project’s structure. Belconnen Concrete’s entire workforce contributed to ANU’s College of Sciences Precinct at various stages, and ensured the project’s smooth progress. They worked to tight detailed tolerances while delivering the high quality off-form finishes required for all the in-situ structural elements.

Belconnen Concrete used the vast range of their mobile concrete placement booms to complete the project. The company owns and operates Schwing equipment, including 7 mobile concrete pumps, 3 mobile high-pressure city/static pumps and 5 high-rise tower Booms and a 61-metre pump, Australia’s first and largest mobile concrete pump.

Belconnen Concrete has a core of highly experienced personnel who are adept at understanding the needs of major projects and resolving challenges. The majority of the company’s 30-plus workforce has been trained in-house. Their skills include logistics, project management and estimating which complements the hands-on expertise of the concrete pump operators and concreters. Some of the company’s staff have been with the company for 25 years or more, which speaks volumes about their level of teamwork and professional pride.

Other major projects Belconnen Concrete has recently completed include Manhattan Apartments on the Park, Bridgepoint Apartments, Dockside Kingston and Canberra Avenue Offices. As an integrated outfit with special expertise in multi-level developments, their skills are highly sought after, particularly for prestige developments where efficiency of placement and quality of finish is paramount

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