



# CHILLED TO PERFECTION

DEVELOPER : NewCold Advanced Logistics  
MAIN CONSTRUCTION COMPANY : Hansen Yuncken  
ARCHITECT : EMKC & SBA Architects  
CONSTRUCTION VALUE : \$72 million

The \$72M NewCold Advanced Cold Logistics Facility #2 involved the construction of an equivalent 12-storey insulated cold storage high bay warehouse facility for storing pallets of cold food with a level of automation not previously seen in Australia. The development includes an automated pick and pack order system, oxygen-reducing fire safety technology, and a state-of-the-art design which will deliver a significant reduction in electricity consumption.

**In June 2016, Hansen Yuncken was awarded the Design and Construct contract by NewCold, a Dutch cold storage service provider, to build a high bay cold storage warehouse and associated facilities at Truganina in the western plains of Melbourne.**

The \$72 million NewCold warehouse is the first of its kind in Australia, featuring a fully automated system of robotics for storage of 120,000 pallets and eight double satellite stacker cranes. The warehouse, with a footprint of 18,500m<sup>2</sup>, has a low bay dispatch building to the rear, with 19 loading docks.

“A significant challenge was integrating the space required for materials handling equipment with the structural grid,” said Senior Project Planner, Paul Stiglich. “As NewCold refined their design, we had to respond to the changes while moving ahead with an accelerated build.”

Warehouse facilities are usually low rise, however, NewCold is 36m high. The boom lifts Hansen Yuncken used were the biggest available in

Australia, and once the frame and cladding were up the structure caught the wind. Hansen Yuncken had to stabilise it with almost \$1 million worth of steel propping until the structure could be self-supporting. “We had to preassemble the enormous roof trusses which were 2m deep and spanning 22m in both directions. We constructed them in 12m sections, taking three lifts to place each one,” explained Paul.

“Over 13 weeks we had 13 concrete pours from 12m<sup>3</sup> trucks with each pour of 525m<sup>3</sup>. The on ground concrete slab required heavy reinforcement and fixing with rock anchors through clay to basalt foundations. It was critical to make the slab level and keep it secure as any movement would have translated to the material handling machinery and interfered with the smooth operation of the facility.

Overall the building had to be well sealed, not just to maintain the temperature for cold storage but to keep the air at a reduced oxygen level. This was an innovative approach to eliminating the risk of fire and we didn’t need to put sprinklers in the building.

The design challenge involved the movement of materials handling machinery between five separate areas, each with different temperature requirements. “With NewCold we developed the concept of an air curtain to separate the spaces,” said Paul. “The success of NewCold #2 led to the awarding of the \$60 million NewCold #1 on a Construction Management contract, the two projects being completed concurrently.”

Hansen Yuncken is a company that embraces innovation, seeking creative solutions for new building types like the NewCold high bay warehouse. Hansen Yuncken strives to implement practical technologies to increase efficiencies for their clients.

Such a project was the \$32 million Australian Container Freight Services Logistics Terminal in Queensland where Hansen Yuncken pioneered the Combi-Slab, a unique concrete hardstand system utilising a combination of fibre reinforced concrete and heavy reinforcing, allowing the construction of a relatively thin slab and increased cost savings over the project. Hansen Yuncken’s expertise is not limited to industrial developments. The company works across a range of sectors including commercial, defence, health, hotel and entertainment and education sectors. Recently completed projects include Hansen Yuncken’s largest job to date, the \$2 billion new Royal Adelaide Hospital and the spectacular \$83 million New Space building at the University of Newcastle.



Hansen Yuncken work throughout Australia, focusing on the East Coast offering ECI, D&C, development packaging, relationship contracting, project and construction management as well as turnkey solutions and fixed price contracts.

**For more information contact Hansen Yuncken**, Level 3, 479 St Kilda Road, Melbourne VIC 3004, phone 03 9831 6500, email [melbourne@hansenyuncken.com.au](mailto:melbourne@hansenyuncken.com.au), website [www.hansenyuncken.com.au](http://www.hansenyuncken.com.au)



**Below** NewCold Melbourne 1 Facility  
WAGNER Fire Safety implemented an  
OxyReduct® fire prevention system.

**Below** SBA Architects developed the design and  
prepared detailed construction documentation  
for the extensive NewCold facility.



At the NewCold Advanced Cold Logistics Facilities, a fire prevention solution is installed that uses an oxygen reduction system to prevent damage from both fire and sprinkler water, as well as ensuring time sensitive logistical processes are protected. The solution comes from WAGNER Group GmbH based in Langenhagen Germany, realised with its local subsidiary WAGNER Fire Safety Pty Ltd.

The challenge for every fire protection solution in cold storage and deep-freeze warehouses are low temperatures and dry air. OxyReduct® is an active fire prevention system designed to prevent the development of fire rather than fighting an outbreak.

The systems reduce the oxygen concentration to a level below the ignition thresholds of the materials stored or used in the warehouse. Reduced oxygen levels mean an increase in the percentage of nitrogen, a safe and non-flammable gas. The high purity nitrogen is distributed via pipes towards the cool air distribution inside the warehouse. Multiple oxygen sensors measure points positioned at different heights to monitor the oxygen concentration and control the production of nitrogen. The OxyReduct® solution offers maximum protection to property, product and the time sensitive supply chain through active prevention 24 hours a day seven days a week.

In 2015, the international projects team at WAGNER Group, detailed the design for the NewCold Melbourne 1 facility and subsequently for the NewCold Melbourne 2 facility. “Our solution requires less installation man power and time, being less invasive on the perimeter of the warehouse, which meant we could continue to work along with the other construction elements,” said Michael Hart, WAGNER Fire Safety’s Managing Director. “We designed a custom engineered solution for the NewCold warehouses, supervised the installation and commissioning to ensure optimal operation of the system. This includes service support, system monitoring and preventative maintenance beyond solution delivery. We stand by our OxyReduct® solution as well as our customers to ensure ongoing mutual satisfaction.”

The WAGNER Group GmbH, has been operating for 42 years with more than 540 employees worldwide. The company’s Australian and New Zealand branch, operates at the forefront of fire prevention technology focusing on both temperature controlled and ambient automated storage warehouses where tall and densely packed racking is difficult for sprinkler systems and firefighters to access.

*For more information contact WAGNER Fire Safety Pty Ltd, email [info@wagner-australia.com](mailto:info@wagner-australia.com), website [www.wagnergroup.com](http://www.wagnergroup.com)*

**SBA Architects are experts in the design and documentation of industrial facilities, specialising in refrigerated warehousing and distribution centres.** In mid-2016 SBA Architects were engaged as consultants to develop the design and prepare detailed construction documentation for the NewCold Advanced Cold Logistics high bay warehouse.

Over 18 months, five members of SBA Architects’ team worked with Hansen Yuncken and other consultants to ensure the structure and services worked within NewCold’s design parameters.

“The project involved a complex and highly specialised design. The automated systems for fire safety and the robotics for stacking are a new technology for Australia, integrating the technology within the building fabric was a challenge. The design called for extensive coordination between mechanical services engineers as well as specialist services and trades,” said Project Architect, David Chin.

“We focus on the refrigerated market, Australia imports and exports substantial quantities of food and there is an increased need for storage and distribution centres, especially high bay warehousing. As the price of industrial land skyrockets it’s more cost effective to go

up rather than use large footprint low level warehousing,” explained Greg Baird, Director of SBA Architects. SBA Architects are experts in the design and documentation of cold warehouse facilities and designed the 12,500m<sup>2</sup> Coles chilled distribution centre at Minchinbury. “We understand cold storage,” said David.

Established in 2003, SBA Architects offer full or partial architectural services tailored to client needs from schematics to full design development, documentation, project management and contract administration. Additional services include interior design, feasibility assessment and value management as well as presentation perspectives and 3D visualisations.

SBA Architects works across the industrial, commercial, and retail sectors in New South Wales, Victoria and Queensland with the greater part of their work focused on the industrial sector.

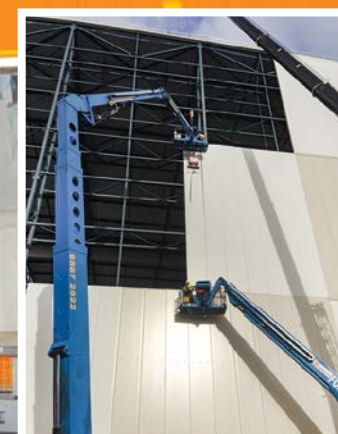
*For more information contact SBA Architects Pty Ltd, Suite 702, 83 Mount Street, North Sydney NSW 2060, phone 02 9929 9988, email [info@sbaarch.com.au](mailto:info@sbaarch.com.au), website [www.sbaarch.com.au](http://www.sbaarch.com.au)*



**Below** Retracom and SBP Australia, joined forces to insulate the impressive NewCold Advanced Cold Logistics Facility #2.



**NewCold Advanced Cold Logistics Facility #2, Victoria**



**Retracom and SBP Australia, both specialist insulated panel installers, worked together at the NewCold Advanced Cold Logistics Facility #2, one of the largest cold stores in the Southern Hemisphere.** “The project had its challenges, mainly due to the harsh environment we encountered in Truganina, but overall, was a success for all involved” said Retracom Project Manager, Martin Bony. “Combining the industry knowledge and resources of Retracom and SBP Australia in a joint venture certainly contributed to the overall success of the project.”

In September 2016, both companies started the design and the production of detailed construction drawings with work onsite commencing in November 2016. A team of 20 installers fitted a total of 65,745m<sup>2</sup> of insulated panels over a 40 week period. The size and specifications of the project presented some unique challenges. The entire facility had to be air tight, water tight and temperature regulated. The team were able to design a system, using insulated PIR panels in conjunction with a waterproof, flexible membrane to achieve the seal that the structure required. This system also enabled NewCold to save energy, as well as reduce oxygen levels to enable the optimal conditions for the fire suppression system.

The project consists of a state-of-the-art, fully automated temperature controlled selective racking system, which required the construction

of multiple rooms in the high bay (storage) building, with link tunnels to the low bay building, which incorporated receiving docks, loading docks, offices, battery charge rooms, freezer and cheese rooms. The sheer size and complexity of a temperature controlled facility of this nature, required Retracom and SBP Australia to draw on their extensive knowledge in the construction of cold storage facilities to enable the project to be successfully completed.

SBP Australia has five divisions: registered builders for the industrial, commercial and residential sectors; insulated panel construction specialists; manufacturer and installer of heavy duty specialist racking systems; steel fabricators; and building and coldroom maintenance. The Retracom Group of Companies has three divisions: the supply and installation of insulated wall and roofing panels to the coldstore, manufacturing and construction industries; the manufacture of modular buildings for the construction, mining and domestic markets; and a substantial transportable building hire fleet.

**For more information contact SBP Australia**, phone 1300 272 254, email [info@sbpa.com.au](mailto:info@sbpa.com.au), website [www.sbpa.com.au](http://www.sbpa.com.au)

**For more information contact Retracom Group of Companies**, phone 07 3489 4444, email [sales@retracom.com](mailto:sales@retracom.com), website [www.retracom.com.au](http://www.retracom.com.au)



