

Bridge plans lead to blue yonder



South Australia's newest expressway bridge is taking shape with minimal disruption over vital Adelaide road and rail links.

Leading steel fabrication company, Air Ride Technologies, is involved in the construction of a new 270 metre long bridge in Port Adelaide as part of the Port River Expressway Stage One project.

All the steel used for this project is 350 grade XLERPLATE® hot rolled plate steel from BlueScope Steel. Smorgon Steel, a distributor of BlueScope Steel products, processed the XLERPLATE® steel at its Ottoway plant.

The new expressway will link the State's major port and rail terminals at the Port of Adelaide directly with the National Highway to Perth and Darwin, and the National Highway to Sydney and Melbourne.

York Civil is constructing the \$10 million eye-catching bright blue bridge for Bardavcol Pty Limited as part of Transport SA's \$83 million project.

"The bridge is constructed of steel box girders, in spans up to 32 metres long. Steel was chosen as the logical construction material due to its cost efficiency, and also for the speed and ease of construction," explains Derek Fabel of York Civil.

Air Ride has fabricated all the structural steel for the four-lane bridge at its Islington workshop.

"We are responsible for the working drawings, fabrication, stud welding and painting of the bridge's beams," says Peter Hall of Air Ride. "York Civil will then deliver the beams to site and erect them."

He said Air Ride is supplying 36 beams ranging from 15 metres to 32 metres in length and from 15 tonnes to 22 tonnes in weight.

"All up, we are using about 800 tonnes of steel for the project. We choose to use XLERPLATE® steel because it is a locally produced, Australian-made product. On a fast-track project like this, it's also more convenient in terms of delivery, especially when compared to imported steel. Delivery of overseas plate sometimes takes a long time, and we can't afford delays on a high-profile job like this."

The ability to work to tight deadlines is a crucial factor in the job's success, says Peter, and so is a reliable supplier: "It's the first stage of the job - whatever goes wrong in the beginning affects the whole job. If the steel is not in good condition, or the paperwork is missing, this results in delays. The overall delivery is very important to us."

New draft standard draws reaction

Standards Australia's release of a new draft standard for Domestic Metal Framing has drawn responses that range from retaining the current code with minor amendments to starting again from scratch.

The draft standard's release led to a meeting of representatives from frame manufacturers, roll-formers, engineers, fastener manufacturers and the welding industry.

"Industry agreed the draft standard (DR 04182) was out of date and not relevant because it was just a copy of the existing standard (AS 3623) – which was developed over a decade ago," National Association of Steel-Framed Housing secretary Ken Watson explained.

"We're trying to make it relevant, bring it up to date with latest steel framing technology and new advances in design – making it user-friendly.

"We're proposing to split it into two parts – one a performance part and a second, later part, to provide guidelines and help to assist people in using steel."

The two parts being recommended by the industry are:

- AS3623.1 Residential steel framed construction - Performance criteria (covers strength, service ability, durability and testing criteria)
- AS3623.2 Residential steel framed construction – Design

It was also proposed that the scope of the code should be increased to cover all low-rise buildings including all types of residential, school and retail buildings.

Only Part 1 would be called up in the Building Code of Australia.

Industry representatives have proposed that the code format and contents should be modeled on AS 1684 Residential timber-framed construction, AISI Standard for Cold-Formed Steel Framing and the draft NZ Code.

A working group was established to redraft Part 1 and a high level of industry interaction is anticipated before a new standard is finalised.

The working group is working towards getting Part 1 called up in the 2006 edition of the Building Code of Australia.

LYSAGHT® technology benefits earthquake victims

Lightweight steel framed building expertise developed in Australia by the Lysaght Technology Centre could soon benefit earthquake victims in Iran.

Recent developments involving the Centre at Chester Hill are crucial to major upgrades of housing stock in Iran's earthquake prone regions.

"Over many years the Lysaght Technology Centre has forged ongoing partnerships with industry and tertiary education facilities," the centre's manager, Cam Seccombe commented.

"These have become international and are now helping to provide the benefits of cost effective steel framed buildings in regions where their advantages are most needed."

The initiative, which may soon benefit earthquake victims in Iran, began in 1995 as part of a response to a major earthquake that shook Kobe, Japan.

After the Kobe earthquake the Lysaght Technology Centre worked with Australia's Huxley Corporation to develop light steel framed housing suitable for the residential market in Japan.

The result was a lightweight framing system, which met specific Japanese earthquake, typhoon and snow-loading standards.

Huxley, which has over 35 years experience in residential housing, has since used this

technology to successfully complete a number of earthquake proof projects throughout Japan.

When a catastrophic earthquake largely destroyed the Iranian city of Bam in December 2003, the Iranian authorities turned to Japan's Ministry of Construction, looking for expert assistance.

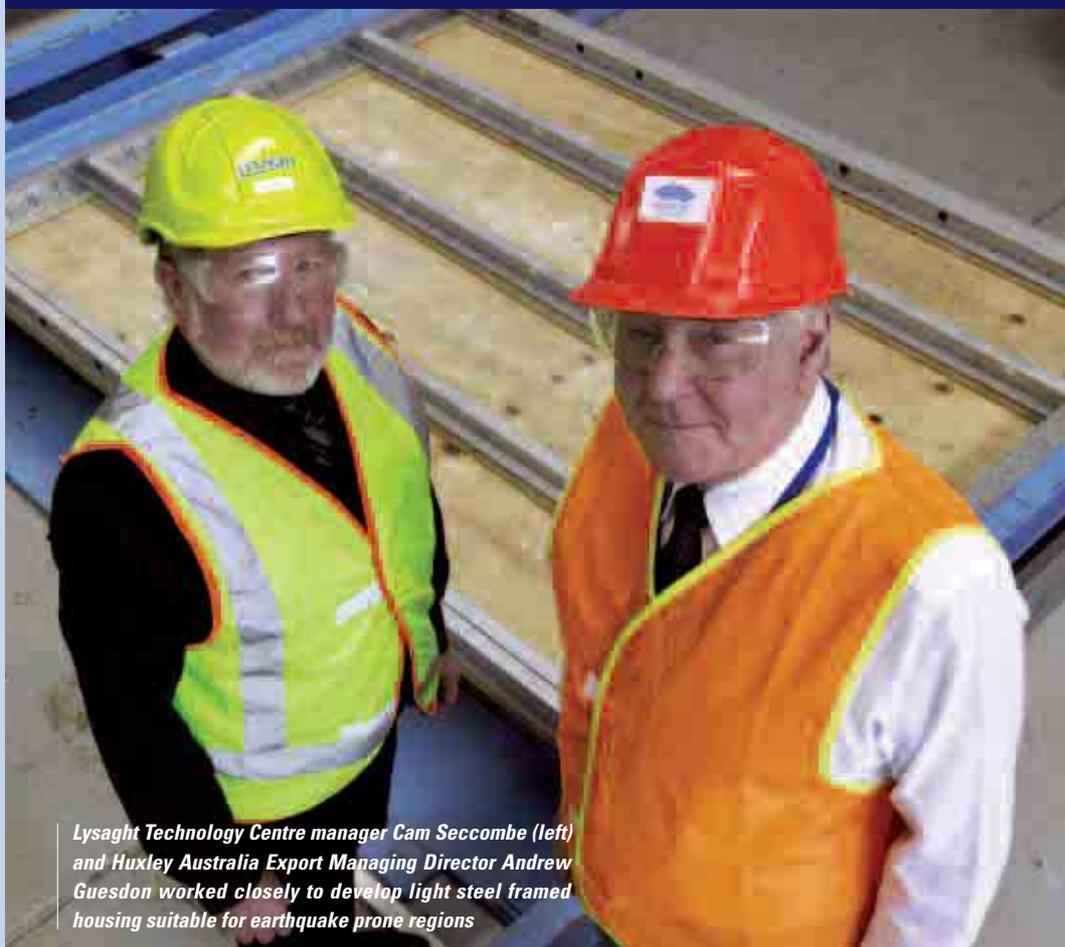
That contact resulted in a referral to Australian expertise and led to negotiations which will soon see Huxley Australia Export Pty Limited erect two steel framed display homes in Iran.

Huxley Australia Export Managing Director Andrew Guesdon said that final plans for the single and two storey homes had been modified at the Iranian authorities' request to include a curved roof incorporating COLORBOND® steel.

The Iranian authorities are planning to replace up to 50,000 homes in the earthquake-prone region.

"Because of the work we did in collaboration with the Huxley Corporation in the aftermath of the Kobe earthquake, the challenge to produce a lightweight steel framing system suitable for Iran was relatively straightforward," said Cam Seccombe.

"Our test rigs, our collaboration with universities and the wealth of experience we have built up by partnering with organisations such as Huxley are helping to produce world-class results for people who need them."



Lysaght Technology Centre manager Cam Seccombe (left) and Huxley Australia Export Managing Director Andrew Guesdon worked closely to develop light steel framed housing suitable for earthquake prone regions



General Manager of Adelaide-based Bordex Wine Racks Craig Anderson (left) and Peter Arnold from BlueScope Steel distributor Brice Metals showcase the ZINCSEAL® steel that is used to produce the modular steel wine racks.

Export innovation a vintage success

An innovative South Australian manufacturer is riding the wave of demand for Australia's premium wines, exporting modular steel wine racks to the world.

Adelaide-based Bordex Wine Racks is one of the largest wine storage system manufacturers in the world.

It manufactures and markets a range of versatile modular wine racks suitable for both domestic and commercial environments.

The racks are made from 1mm thick and 24.5mm wide ZINCSEAL® steel that is processed by Brice Metals - a BlueScope Steel distributor that has grown to become one of South Australia's largest sheet metal and coil distributors.

ZINCSEAL® steel is a zinc-iron alloy coated, commercial forming steel suitable for bending and moderate forming. It is skin-passed for an extra smooth, surface suitable for a high quality paint finish.

The Bordex workforce has grown by over 300 per cent in the last five years, due largely to its export success.

It now services markets in 22 countries - including the UK, northern Europe and throughout Asia.

Such has been its success, Bordex is due to open a new warehouse and office in New York next month, adding to its existing international offices in both the UK and Copenhagen.

"Exports now represent over 30 per cent of our total turnover," said general manager Craig Anderson.

"Not only are the racks a unique stand-alone product, but also the perfect complement to another well known and respected Australian export - wine."

The space saving modular racks are available in a range of kit sizes and can be custom made to any size.

Once installed, the racks which can be designed to fit under stairs, in cabinets and to circumnavigate corners can be expanded and reconfigured as required.

Bordex traditionally targeted commercial clients such as winemakers, restaurateurs and wine retailers.

However, increasing popularity with individuals through the Bordex website has greatly boosted recent growth in global markets.

The website (www.bordexwineracks.com) is tailored to suit the language and currency of individual users. It allows customers to design and view a 3D version of a complete wine cellar online, and lets buyers make secure payments and track deliveries online.

Bordex expects turnover to increase by as much as 20 per cent over the coming year, propelled by its increased presence in the US marketplace.

Internet speeds export orders

An internet based Export Contracts and Ordering System now online through BlueScope Steel is streamlining business for the company's international customers.

The new system has already been used to generate 2,500 significant contracts.

The ECOS system enables the creation of export contracts in a fraction of the time taken previously.

It was originally rolled out within Australia late last year and the success of the system has now led to a global rollout.

ECOS dramatically simplifies the process of forming a commercial contract between parties often on different continents.

It provides a single online work space for company officers to "build" a contract with version control and managed authority levels.

The new system supports metric and imperial measurements and all monetary denominations.

Last year BlueScope Steel processed export transactions totalling \$1.4 billion.

Framing's Pacific solution

A steel framing specialist in Far North Queensland has taken on the often severe cyclonic conditions of northern Australia and the Pacific Rim with assistance from the James Cook Cyclone Structural Testing Station in Townsville.

Homefab Steel Truss and Frame, which caters for the growing trend toward steel framing in the domestic building industry, is a leading residential steel building component manufacturer in Far North Queensland.

From its premises at Mareeba, near Cairns, it supplies steel house frames from Mackay to Mt Isa, the Torres Straits and Papua New Guinea.

Homefab manufactures wall frames, roof trusses, flooring systems, steps and handrails built with the inherent benefits of ZINCALUME® steel.

Each of its structures are certified to withstand the various cyclonic wind loadings - N1 to N5 C3 - as specified in the Australian Standard AS 4055.

Its unique steel roof and wall trusses have also been tested, and proven, at the James Cook Cyclone Structural Testing Station.

Founded in response to cyclone Althea which hit Townsville in 1971 and cyclone



Homefab Steel Truss & Frame manufactures cyclone rated steel frames in Far North Queensland.



Tracy in Darwin in 1974, the station operates as a unit within the School of Engineering at Townsville's James Cook University.

It serves not only Australia and North Queensland but also most other cyclone prone regions throughout the world.

Since its inception the station has worked closely with BlueScope Steel, testing the capabilities of steel cladding, framing and fixing systems in cyclonic conditions.

"Steel offers a flexible, termite proof, corrosion resistant product that is competitively priced, easy to transport and extremely fast to erect on site," Homefab General Manager Silvano Scippa said.

"But the rigorous testing procedure we undertook proved that in another area important to homeowners in this region - cyclone ratings and wind loadings - steel is ideal."

HomeFab's emphasis on quality and performance also extends to its workforce, which includes Steven Winton, who was recently named the COLORBOND® steel Apprentice of the Year.

Steven attended the Tropical North Queensland Institute of TAFE and completed his three-year apprenticeship in July.

Doing it on site

On-site rollforming technology has solved a construction challenge at a vast new automotive manufacturing plant in Malaysia.

BlueScope Lysaght Malaysia used its unique mobile rollforming technology to fabricate the Clean COLORBOND® roof and wall cladding on-site for a new RM300 million (SA110 million) Naza Automotive manufacturing plant.

Naza Automotive, a member of Malaysia's Naza Group of Companies, assembles, markets and distributes the Kia range of vehicles in Malaysia.

Its new vehicle assembly plant is built on a 60-hectare site and is capable of producing 50,000 units annually.

The company turned to BlueScope Lysaght Malaysia's on-site rollforming technology to clad the massive 50,000 square metre plant.

BlueScope Lysaght rollformed over 50,000 square metres of Clean COLORBOND ZIP® profile



Using its unique mobile rollforming technology BlueScope Lysaght Malaysia were able to produce Clean COLORBOND® in single spans of up to 140 metres long for Naza Automotive's new manufacturing plant.

in the colour Shale Grey™ for the roof.

"The longest roof spans stretched over 140 metres in length," Yip Chuan Seong from Bluescope Lysaght Malaysia explained.

"Rollforming on-site meant we could produce one single roof length without any lap joints, hence eliminating the risk of the roof leaking.

"It also allowed quicker fabrication and

erection and eliminated any transportation issues."

BlueScope Lysaght also rollformed nearly 5,000 square metres of LYSAGHT Clean COLORBOND SPANDEK®, in the colour Surfmist®, for the walls.

Such was the size of the project it also rollformed over 2,350 square metres of Clean COLORBOND V-CRIMP® HI-TEN in the colour Shale Grey™ just for the building's fascia.

Steel style still shines



Kameruka Homestead before the renovation.



Kameruka Homestead

A renovated homestead in rural New South Wales is again demonstrating the advantages of steel cladding more than 80 years after it was first built.

Kameruka homestead, between Narromine and Dubbo, 450 kilometres from Sydney has been transformed from a state of neglect and expanded to serve again as a family home.

The homestead was described in a 1919 edition of the Narromine Dispatch as "one of the prettiest homesteads in the district".

When Anna and Neville Buch bought the property more than 70 years later, nothing could have been further from the truth.

Kameruka had been derelict for over 30 years, home to numerous bird families, as

well as adventurous cows who had found their way in through the gauzed-in veranda.

The Buchs moved overseas and only began thinking about restoring the house when they returned in 2000.

"Most builders we took out there just said to knock it down," Anna Buch said. "It was all open and only had half a roof."

They finally settled on local builder Neil Cale who had known the house since his childhood, appreciated its history and wanted to preserve it.

"The rooms all had the original oak mantelpieces and mirrors which we restored, as well as cypress pine floorboards.

"The French doors in each bedroom were damaged by the resident cows, so we've replaced them in cedar.

"All the internal walls were made of original LYSAGHT MINI ORB® - which would date from when the house was first built, over 80 years ago.

"We cleaned them off and painted them and they are as good as new.

"We've also kept the original 12 foot ceilings and cornices as well, which were made from original LYSAGHT® pressed tin.

"I think it is just amazing that the original LYSAGHT MINI ORB® has survived," Anna Buch said. "I just love it."

Externally the house has been entirely re-clad.

"The original exterior wall cladding was LYSAGHT CUSTOM ORB® also dating from early last century," said Neil. "We replaced it with new LYSAGHT CUSTOM ORB® in Deep Ocean COLORBOND® steel installed vertically,

with insulation batts between the interior and exterior walls.

"We also replaced the wide enclosed verandah that encircles the house. The verandah roof is bullnosed, made from LYSAGHT CUSTOM BLUE ORB®," says Neil. In an innovative twist, the verandah is enclosed by 50cm high panels of a BlueScope Lysaght fencing profile, LYSAGHT MINISCREEN® in 'Deep Ocean', and is then gauzed to the top of the verandah roof.

In addition to restoring the original house, the Buchs have also added a large extension which includes a kitchen, TV room and large living area for the family, as well as a bedroom, ensuite, living room, and kitchen for the caretaker.

Featuring cypress pine tongue and groove floorboards and LYSAGHT MINI ORB® in 'Merino' COLORBOND® steel interior wall cladding, the new area has been designed to co-ordinate with the older part of the house.

"When we did the extension, my brother suggested that we take the MINI ORB® all the way through, which we did," says Anna. "It's just fantastic. It gives the rooms texture and complements the original theme of the house. The colour I chose throughout the interior was Merino – a rich creamy colour, with picture rails and skirting in deeper cream."

All up, Anna says, the restoration of Kameruka has been a complete success. "People walk in and they are amazed by the house – it's got a fantastic feel. The combination of the history and tradition of the original part, and the space and light of the extension, works really well. We love it – we're so happy with the result."



LYSAGHT CUSTOM ORB® in 'Deep Ocean' COLORBOND® steel was used to clad the house.

Putting the Greenhouse to work

An Australian invented solar heater and cooler provides sustainable, clean climate control for new and existing homes by putting nature's greenhouse effect to work.

The heart of the Sun Lizard, invented by Colin Gillam of Alternative Fuels and Energy, is a roof-mounted box made from COLORBOND® steel.

Special low-iron glass on top of the enclosure captures the sun's heat to warm air passing through angled baffles in the interior of the unit. The heated air is then pumped inside the home using solar-powered fans.

The clever design is also self regulating. The less sun, the slower the fans, so cold air is not pumped into the building when the sun goes down or it becomes too cloudy.

In summer the fans run in reverse, pulling heat from the home so that cooler air can flow in.

"There are around 7.8 million dwellings in Australia," Colin Gillam said. "If all of these dwellings had a standard air-conditioning unit, the environmental consequences would be severe.

"Air conditioners use gases with a greenhouse impact that can be up to 3000 times that of carbon dioxide.

The Sun Lizard on the other hand, produces no greenhouse emissions and thanks to its solar

operation users will also benefit from reduced energy bills for the next 20 years.

In winter the system uses hot but wasted air from near the ceiling, heats it to around 50 degrees Celsius and then returns the air to the floor level of the home.

In summer the air is drawn out through the same ceiling vent, but is then pumped outside.

"We anticipate the maintenance free lifespan of the solar heater is about 15-20 years," Colin Gillam said.

"The fans are rated at 50,000 hours between failures, the photo-voltaic cell will function to fans for at least 20 years and the rest is COLORBOND® steel and glass which won't wear out."

The latest version of the Sun Lizard with its COLORBOND® steel enclosure offers improved



Installer Adam Hutton showcases the Australian-invented Sun Lizard.

aesthetics for roof installation as well as improved thermal efficiency.

It also has four temperature sensors and data logging capability for householders who want to monitor its performance on a PC.

Glassy steel breakthrough

A breakthrough by researchers at America's Oak Ridge National Laboratory has created a new form of steel that is significantly harder and possibly stronger than conventional steel.

Dubbed glassy steel, the new steel may have magnetic properties and corrosion resistance enhanced beyond those of industrial steel, according to *Worldsteel News* published by the International Iron and Steel Institute.

Unlike conventional steels which have a crystalline structure consisting of a regular

arrangement of atoms, glassy steel has a highly disordered structure in which atoms are arranged randomly.

This avoids the crystallographic defects that control the mechanical behaviour of conventional steels.

Early indications are that glassy steel is at least twice as hard as most ultra-high strength conventional steels.

Unlike conventional steel, glassy steel is not magnetic at room temperature - an asset in applications as diverse as medical imaging devices and submarines.

Commercial applications could include spring materials, tennis rackets, bicycles, airframes and cutting materials.

Oak Ridge National Laboratory (ORNL) has a staff of 3,800 and approximately 3,000 guest researchers.

Its \$1.4 billion annual budget is funded by the US Department of Energy.

No time frame for commercialisation of glassy steel has been put forward. ORNL admits that further work is needed to improve manufacturability and to meet scale-up challenges.

Taking it to the road

BlueScope Steel advertising has taken to the road. One of the successful advertisements from the company's continuing corporate brand awareness campaign is now appearing on the canopies of trucks used to deliver BlueScope Steel products.

"This is another way of supporting our customers with high profile exposure of the BlueScope Steel brand," according to Corporate Brand Manager, Leo Kerema. "It reinforces the strength of the name behind our premium products such as COLORBOND®, ZINCALUME® and XLERPLATE® as well as the LYSAGHT® range of steel building products," he said.

"There is a huge amount of equity in the BlueScope Steel name and customers who use our product brands benefit from the association."

The advertisement seen on the trucks is also currently appearing in key trade and industry magazines, reminding people that 90 years after the company began, BlueScope Steel is the new name for Australia's leading steel company.

The newly liveried trucks were recently filmed at Sydney Olympic Park during an attempt



BlueScope Steel trucks being used for 2004 Guinness Book of Records truck pulling record attempt.

for the Guinness Book of Records. Strongmen Derek Boyer and Craig Reid attempted to pull the trucks, each weighing 32.5 tonnes with a

full load of steel, along a 30.5 metre track. They moved the two vehicles about six metres before giving up.

SUPAZED® AOK for new plant

Seventy kilometres of LYSAGHT SUPAZED® purlins have helped speed construction of a new \$270 million aluminium extrusion plant, under construction at Bundamba, west of Brisbane.

Construction group Watpac is building aluminium extrusion, powder coating, anodising and warehouse facilities for Capral Aluminium on the 17-hectare site.

Leading steel design and engineering firm, Rimco Building Systems has designed, manufactured and installed all the structural steel required.

Rimco has supplied 1,750 tonnes of structural steel for the Capral Aluminium Plant, all fabricated in its modern 4,000 sqm Arundel plant.

LYSAGHT SUPAZED® purlins fixed to the structural steel provided significant advantages for Rimco.

"It's the largest job we've ever undertaken," says managing director David Rolle. "We negotiated the structural steel contract with Watpac, on the basis of our design. We provided the drawings as part of our preliminary proposal and budget, which they accepted."

The first important development in the field for decades, the SUPAZED® purlin features

longitudinal web stiffeners, which considerably improve its performance, allowing it to span longer expanses with ease.

"With the SUPAZED® purlins we can span greater distances with a smaller section," says Rimco general manager, Mike Burrows. "The web stiffeners on the purlin give it greater strength, so we can also increase the spacing of the purlin set out."

"The result is that we use less material, which is more economical, which fits well with our philosophy of innovative, efficient client solutions."

"BlueScope Lysaght offered us the technical support and design assistance that we needed for the project," adds Mike.

The Capral Aluminium Extrusion Plant will be completed at the end of 2004.



The new \$270 million Capral Aluminium Extrusion Plant incorporates over 70 kilometres of LYSAGHT SUPAZED® purlins.





LYSAGHT MyFence™ offers homeowners throughout Malaysia a practical and affordable residential fencing solution.

Malaysia says that's MyFence™

Stylish steel fencing, a common sight in backyards throughout Australia, has hit the market in Malaysia.

BlueScope Lysaght Malaysia launched the decorative steel fencing solution LYSAGHT MyFence™, specifically for the local residential market.

LYSAGHT MyFence™ uses solid infill panels made from COLORBOND® XFP steel fitted into a steel post and rail frame.

The private and secure barrier provides a practical and affordable alternative to the chain link or brick and cement walling more common throughout Malaysia

LYSAGHT MyFence™, the first residential steel fencing solution offered in Malaysia,

aims to change local fencing preferences.

It's durability, low maintenance requirements, easy installation and cost effectiveness are expected to appeal to the Malaysian market.

Termite resistance and certification of suitability by Malaysia's Fire and Rescue Department are also expected to win converts from traditional fencing materials.

The infill sheets made from COLORBOND® steel provide a durable solution that resists warping, rotting, chipping and peeling and is designed to withstand all weather conditions.

A simple hose down is all that is required to keep it looking good.

LYSAGHT MyFence™ is available double-sided in LYSAGHT TRIMDEK® profile in 1200mm,

1500mm and 1800mm heights. It can also be installed with or without a decorative lattice.

BlueScope Lysaght Malaysia aims to make LYSAGHT MyFence™ the choice of property developers who currently use chain-link type fences.

LYSAGHT MyFence™ also provides an aesthetically impressive solution for owners of terrace type housing – which makes up nearly 40 per cent of Malaysia's housing mix.

MyFence™ is stocked as a standard item in BlueScope Steel Malaysia service centres in JohorBahru, Butterworth, Kuala Terengganu and Shah Alam.

Homeowners can also purchase it from specified distributors, home renovator contractors or selected hardware stores.



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\$100 million expansion for Port Kembla

BlueScope Steel Limited is to invest \$100 million to increase the nominal capacity of the Hot Strip Mill at Port Kembla Steelworks from 2.4 to 2.8 million tonnes per annum.

The investment will fund construction of a second walking beam rehear furnace to provide capacity to add value to an additional 400,000 tonnes of steel slab per year through further conversion to hot rolled coil.

The works will be undertaken in a manner that will minimise the impact on current plant operations and are expected to be completed in the first quarter of the 2006/07 financial year.

The additional hot rolled coil production will help to support the expansion of BlueScope Steel's downstream steel coating and painting facilities in Asia and also assist in meeting demand for flat

steel products in Australian domestic markets.

Managing Director & Chief Executive Officer Kirby Adams said: "This project represents BlueScope Steel's largest single investment of capital in Port Kembla Steelworks since the Company's public listing in July 2002. Through this investment, we will further improve our competitiveness in the global market for hot rolled coil.

"It will enable us to lower our unit costs by taking more of our product downstream to create additional value and reduce risk in the hot strip mill."

The project will employ more than 150 people during the construction phase. All regulatory approvals are in place and the development consent for the project has been received from Wollongong City Council, the consent authority.