

Xlerplate® steelintouch

News for XLERPLATE® steel customers

ISSUE 13 | SUMMER 2008

SPECIAL FEATURE

Fabrication: industry
perspective

IN THIS ISSUE

SPECIAL FEATURES

Understanding steel plate - part two
Fabrication - state of the industry perspective

CASE STUDIES

Abbot Point Coal Terminal
United Group Resources delivers for BP

REGULAR FEATURES

Sales team contacts
Quiz
Latest news around the country





Well, things have certainly changed since we brought you the last edition of XLERPLATE® *Steel in Touch*. It just goes to show that there is rarely a dull moment in this industry of ours.

Only a couple of months ago we were in a situation where unprecedented demand for XLERPLATE® steel was putting pressure on our supply capabilities, notwithstanding we were producing at record levels.

The extremely high demand has now eased and we are back to a position where our delivery performance is at the high levels our customers are familiar with.

Whilst many of us in the industry will be feeling the effects of dynamic global economic conditions, it pays to remember that the economy, like the steel industry itself, is cyclical. BlueScope Steel aims to be competitive and responsive to changes in market conditions throughout the business cycle.

We're up to the challenge, as I am sure you are too.

The tough economic environment really reminds us of what is at the heart of BlueScope's value proposition: our quality, Australian-made product and the high level of service we offer our

customers. We especially pride ourselves in the expertise we put into products like XLERPLATE® steel and the technical service we deliver to our customers.

As you can see, we have put extra effort into this bumper edition of *Steel in Touch*, which is packed with useful information and insight. Looking to the future, the new XLERPLATE® website will be launched early next year and we hope you also find that to be a useful business tool.

From all of us at BlueScope, we wish you a safe and happy festive season.

Bernie Landy

General Manager Industrial Markets
BlueScope Steel
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Worldwide governments respond to financial crisis

BlueScope economist Nick Scavarelli provides an overview of the current global financial situation and actions being taken to cushion negative impacts.

Governments and central banks around the world are searching for solutions to the global financial crisis, as it is now translating into significantly slower economic activity across most regions. Falling equity markets, tighter credit and declining confidence have left companies and consumers either unable or unwilling to spend and invest. As a result, there has been a combined global effort from policy makers to simulate their economies to prevent a long period of recession. Australia's Federal Government is no exception.

The US economy is most likely already in recession, or likely to fall into recession in the near future. The question is how long and deep the recession will be. The US authorities have taken drastic measures to stabilise their financial markets following the collapse of Lehman Brothers and subsequent freeze in financial assets. A massive bailout

scheme totalling up to US\$700bn has been announced which aims to stabilise the global banking system. Another direct action has seen America's Federal Reserve cut its policy interest rate by a further half point to 1%, on 29 October.

The expectation that the EU economy could maintain growth in times when the US economy was slowing has proven optimistic, as the EU economy is now in recession. Several Eurozone economies suffered contraction in the third quarter, with Germany and Italy entering recession. Governments in this region are taking measures to minimise the downturn, with the Bank of England recently lowering interest rates by 150 basis points, which was three times greater than most economic commentators expected.

Further, on 24 November, the UK government introduced a stimulus package which totals around US\$30bn, or one per cent of annual GDP over the next 12 months.

EMERGING ECONOMIES

The emerging world economies are also taking actions to limit the fall out of the global financial crisis. Russia is spending US\$220bn to shore up its financial system. South Korea has guaranteed US\$100bn of its banks' debt.

The IMF has unveiled a new emergency lending programme that will get money to well-run countries quickly and with almost no conditions attached if they are hit by financial volatility. The new liquidity facility is the culmination of a decade of attempts at the IMF, after the Asian financial crisis of 1997/98, to come up with a way of protecting emerging markets from financial problems.

China intends to inject US\$586bn to avert a more serious slowdown in its economy. In addition, on 26 November, the People's Bank of China (PBC) slashed interest rates to around 5.5 per cent and further lowered banks' reserve requirements. The governor of the PBC has also indicated that the bank will "actively work" with the International Monetary Fund to develop a plan to stabilise

Increased investment in infrastructure projects is one of the Australian Government's preferred measures to achieve a boost in economic activity



Nick Scavarelli

volatile financial markets. The governor expects the Chinese economy to expand between 8% and 9% in 2009.

AUSTRALIAN FISCAL ACTION

In recent weeks, the Australian Government and Reserve Bank of Australia have also acted swiftly to avoid a significant downturn in the domestic economy. The emergency action includes lower interest rates and a boost in public sector investment.

The Federal Government has announced a A\$10.4bn stimulus package designed to boost spending and confidence, including changes to the first Homeowners Grant, pension reform and support payments for low and middle income families, bringing forward infrastructure projects and creating additional training places to support employment. It has also indicated it will instigate a massive injection of A\$6bn to the automotive industry to ensure its long-term survival. In an effort

to stabilise the domestic financial system, the Federal Government has also agreed to guarantee savings deposits up to A\$1m, as well as loans used by Australian banks to raise capital on wholesale funding markets. It has also followed the US lead and decided to allocate A\$8bn to purchase mortgage-backed securities in a bid to boost liquidity.

The Reserve Bank of Australia has also acted by slashing its benchmark interest rate by 75 basis points to 5.25 per cent, the third cut since September when the cash rate was 7.25 per cent. In making the cut, the Reserve Bank cited reduced Chinese growth and lower commodity prices as key factors.

INFRASTRUCTURE AND STEEL

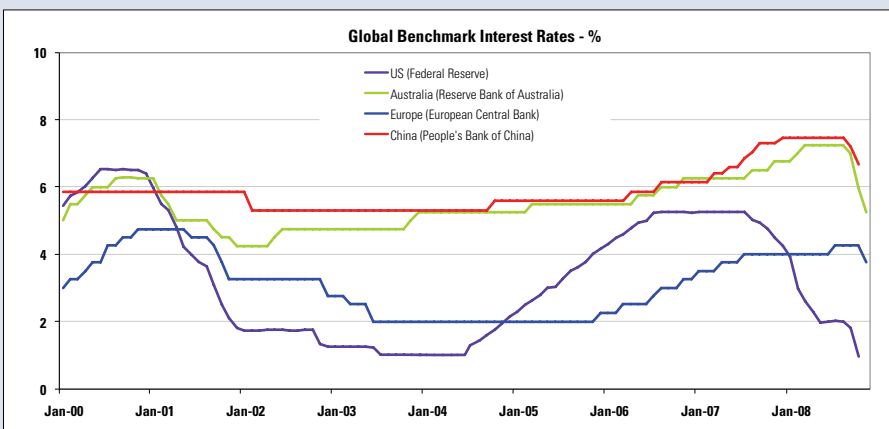
As part of the government's plan to boost infrastructure projects, it is working closely with the states to speed up the federal audit of the country's infrastructure requirements. Infrastructure Australia will present its audit

findings by the end of December this year.

The domestic steel industry is likely to experience positive spin-offs from the Government's desire to speed up the public investment drive, which is designed to assist in both city and regional areas.

Article written November 2008

Nick Scavarelli is a senior economist with BlueScope Steel. His economic analysis and advice is utilised by divisions such as BlueScope's Industrial Markets. This is the division that produces XLERPLATE® hot rolled plate steel, manufactured to tolerances that conform to Australian Standards and ISO 9001 International Quality Standards.



FRONT COVER

The seven metre high XLERPLATE® Steel 'trees' which are a feature of Dogwood Crossing at Miles, are a talking point for users of the unique regional centre which serves as a library, art gallery, social history museum and IT centre for Queensland's Murilla Shire Council.

■ The trees, fabricated by Allied Welding in Toowoomba are an appropriate scene setter for the regional design and craft exhibition the venue is currently hosting.



Fabrication of the headstocks for the Abbot Point extension project required ongoing attention to quality control

Port extension boosts Queensland's coal export capability

OVERVIEW

Ports Corporation of Queensland (PCQ) is using over 8,000 tonnes of XLERPLATE® steel in a major expansion of its Abbot Point Coal Terminal. XLERPLATE® steel will be used in the construction of a new wharf and ship loader, including piling, headstocks and rail track. The extension will enable the port to increase coal export capacity from 25 to 50 million tonnes per year.

BACKGROUND

Ports Corporation of Queensland is responsible for the development and management of sea port facilities which are vital to the export performance of Queensland. One of the ports it manages is Abbot Point, situated about 25 kilometres north of Bowen. Abbot Point is of significant strategic value as one of the few sites along Queensland's seaboard where deep water is close in-shore.

PCQ has commissioned a major expansion of Abbot Point to ensure that Queensland's \$16 billion coal export industry can meet future demand. Global demand for coal is growing at a phenomenal rate. Predictions for growth in demand for Queensland coal range between 5% and 13% per annum through to 2009/10, fed by industrial growth in China and India.

With miners contracting to export increasing quantities of coal, PCQ is acting to ensure that Abbot Point is able to cater for the demand. Upgrading the port's export infrastructure will boost export capacity by 50% from the current 25 million tonnes per annum.

PROJECT

John Holland's SMP business, RPG Australia and BlueScope Steel are working in alliance for the Abbot Point expansion. John Holland, which specialises in the expansion of marine facilities, is responsible for project

management, co-ordinating a team of 300 people on site over what will be an 18-month construction period. The team will be building on the existing jetty to create a new wharf and a new ship loader. The construction will amount to a duplication of the existing facility and is expected to use between 8,000-11,000 tonnes of XLERPLATE® steel.

RPG is responsible for fabrication of the piling, which will be used to support the new wharf. The piling varies in length between 49 and 57 metres, meaning that each one must be created in three sections or 'cans'. These cans are created using 16mm Grade 350 XLERPLATE® steel which is cut to size, rolled to a 1,200mm diameter and then moved onto rotators for welding.

"The sections are welded by submerged arc process," explains Matthew Stewart, General Manager – Pipe Division, RPG Australia.

“This means they can be welded internally and externally, eliminating double handling. We consider sub-arc to be the most efficient technique for this type of job, bearing in mind the structural purpose and the thickness of the steel.”

RPG also ensures at the end of the pile there is a 25mm thick diving shoe welded on with a bevelled edge. The bevelled edge provides a cutting tool which allows the pile to slice through marine rock more easily. The surface finish of the pilings is also critical – they need to be painted to resist corrosion in a salt-water environment.

John Holland is responsible for the fabrication of all other project components. There are a number of different applications of steel planned, with the team converting XLERPLATE® steel into sections including modules, box sections, chutes and headstocks.

“The John Holland team is responsible for driving the piles into the seabed and then scalloping the top of the pile so the headstock can sit on top of it to create the new wharf,” said Alban Manning, Manager - Fabrication and Coatings, John Holland’s SMP business.

“The team is also working on the fabrication and construction of the rail girders and support beams that the new ship loader will run along when moving across the wharf. Finally, we are also fabricating rail fenders for the wharf. These are rubber-guarded buffers that the

ships ‘bounce’ against when they dock.”

When it comes to the welding process, John Holland uses the same submerged arc approach as RPG. Unlike manual welding processes, this is an automated method which offers a high deposition rate and a lot of weld pool. Practically, this means that the team can complete the weld in a single flow rather than going over it numerous times, making the process far more efficient.

WORKING TOGETHER

One of the biggest challenges in a project of this scale, is making sure that there is open communication between all members of the project team. Ongoing dialogue, as well as an understanding of each other’s working practices, is critical to the smooth roll out of the expansion work.

“It is important that the teams at RPG, John Holland and BlueScope Steel are sharing information,” said Matthew Stewart. “If all parties are aware of changes in scheduling and logistics we are able to adapt accordingly.”

“It is also imperative that we understand what is required at each stage of the construction process,” Matthew continued. “For example, one of the biggest challenges for RPG has been to adhere to very tight dimension and straightness tolerances when fabricating the piles. This is because we are aware that if the diameters of the piling are too varied, John

Holland will face problems when constructing the piles on site. It is this commitment to thinking through the project as a whole that has fostered an effective working relationship.”

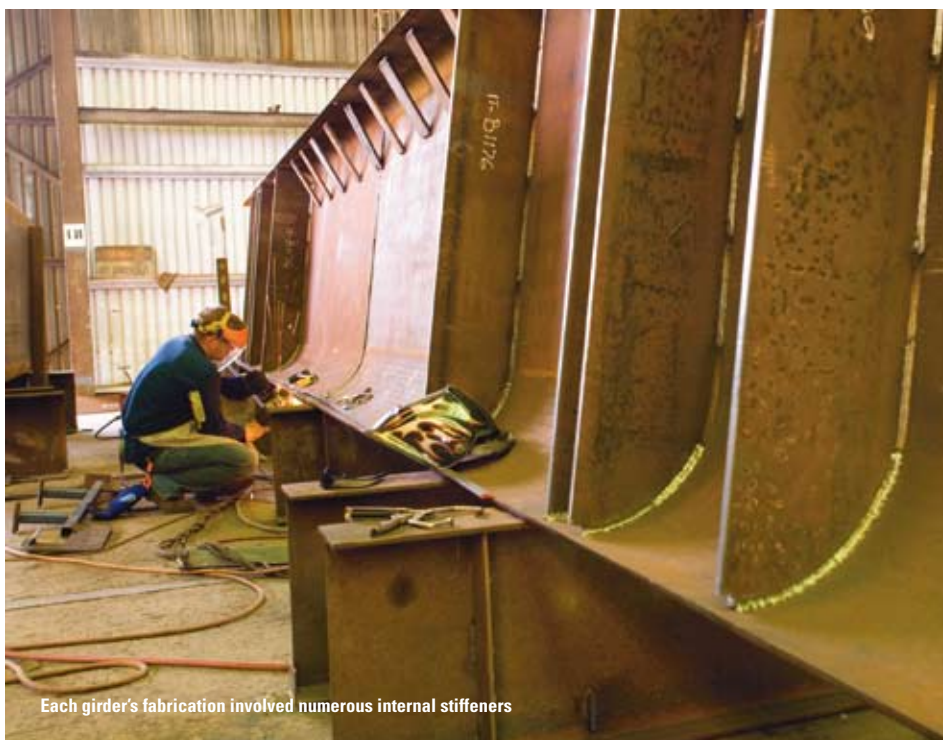
STEEL-SPECIFIC FOCUS

“This project impacts the export capability of the whole state and, as such, it is fundamental that construction runs to schedule,” said Alban Manning. “A key factor in using XLERPLATE® steel was BlueScope’s inherent reliability. With BlueScope supplying local steel, the product arrived quickly. This has contributed to a speedy construction process.”

“XLERPLATE® steel can be pressed heavily without cracking and is easy to weld given as it has no major flaws,” Alban emphasised. “We also find that when working with XLERPLATE® we do not encounter any lamination issues – there are no layers of separation in the steel so no potential cracks.

LOOKING FORWARD

PCQ is already planning two additional stages of development. The X80 expansion will increase export capability to 80 million tonnes per year, with the X110 expansion lifting capacity to 110 million tonnes per year.



Each girder’s fabrication involved numerous internal stiffeners



Alban Manning, Manager – Fabrication and Coatings of John Holland’s SMP business

What makes plate: understanding steel plate supply conditions – part two

By John Dryden, National Technical Manager Uncoated, BlueScope Steel

Understanding the conditions in which steel plate is supplied is critically important for all those involved in the use, fabrication, ordering and distribution of steel. Using steel with appropriate mechanical properties – such as strength, toughness and hardness – for specific jobs, each of which will have its own unique challenges and needs, means lower costs and more effective outcomes.

In the previous article (*Steel in Touch Ed. 12*) of this two-part series, the four plate supply conditions were discussed. In this article we go into further detail on each of those four conditions:

- As Rolled
- Normalised
- Thermo-mechanical Controlled Rolled
- Normalised Rolled

AS ROLLED

With As Rolled plate there is only a moderate strength requirement and usually no or only moderate toughness requirements for the steel. There is no stipulation on the 'finish' rolling temperature (the temperature at which

the final pass in the rolling mill is carried out), but generally the finish rolling temperature of an As Rolled plate will be above the A3 temperature (the temperature where the austenite in steel starts to transform into ferrite – see previous article).

Examples of As Rolled plate are AS/NZS 3678-250. This sort of plate is often used for general structural applications and hoppers, bins and tanks.

NORMALISED

With plate supplied in the Normalised condition, the plate rolling process is similar to As Rolled plate. Following rolling, however, the plate is subjected to an additional heat treatment process: Normalising.

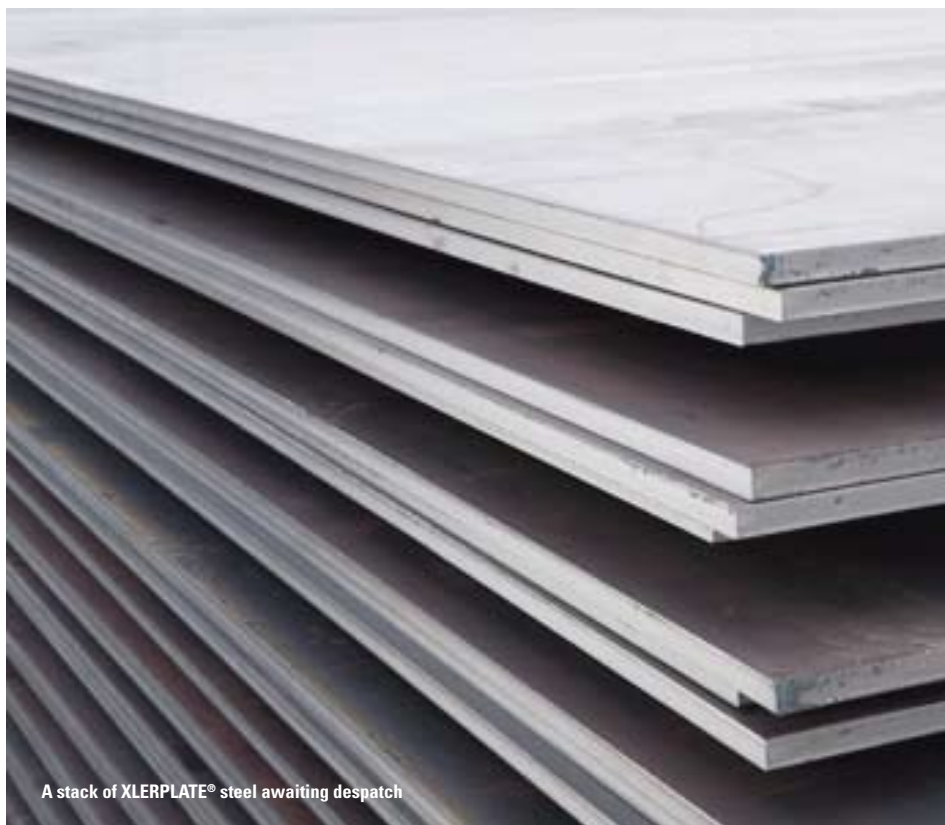
Normalising is usually specified where there is some high-temperature forming process during fabrication. It may also be used where the mechanical properties specified are not achievable by rolling alone. In Normalising, the plate is heated up to a temperature just above the A3 (approximately 900°C for most plate steel grades) and held there for a

period of time. During this heating period the ferrite and pearlite structure transforms back into austenite. Because the temperature is held close to the A3, a uniform fine-grained austenite structure develops.

After heating, the plate is cooled in still air. As the plate cools, the fine-grained austenite structure transforms again into a fine-grained ferrite/pearlite mixture. The result is a structure with improved strength and toughness compared to As Rolled. Examples of grades are AS 1548-7-460NL40 and AS 1548-5-490NL50. Normalised plate is often used in pressure vessels operating at low temperatures and heavy gauge plate requiring good toughness.

THERMO-MECHANICAL CONTROLLED ROLLING

Another common supply condition is Thermo-mechanical Controlled Rolling (TMCR). This may also be referred to as Thermo-mechanical Controlled Processing (TMCP) in some standards. Note the terminology of 'Controlled Rolling' to describe the TMCR process is not



A stack of XLERPLATE® steel awaiting despatch



XLERPLATE® steel exiting the rolling mill at the Plate Mill



A heat exchanger showing the tube plate at the end of the vessel

strictly true, as any process that controls the temperature at which final deformation is carried out is 'Controlled Rolled'. Hence, by definition the 'Normalised Rolled' process described below is also a 'Controlled Rolling' process.

In the TMCR process the final rolling passes occur at, or just below, the A3 temperature. As a consequence of the low(er) finish rolling temperatures, the recrystallisation of the austenite structure is inhibited and the subsequent transformation of austenite leads to a fine-grained ferrite and pearlite structure. The fine-grained structure produces plate with good strength and toughness.

However, because rolling is completed at a temperature below the A3 there is some deformation (or cold work) of the ferrite formed as a result of the transformation from the austenite. As a result, if a TMCR steel is heated up to above the A3 (as in hot forming of dished – dome-like – ends) the cold worked ferrite will transform back into austenite and the plate will lose strength.

Consequently, hot forming of TMCR grades is limited to ~620°C to prevent any significant loss of strength or toughness. One of the

advantages to TMCR is that it generates equivalent strength and toughness to normalised steels at lower carbon equivalents without the extra cost of heat treatment. The disadvantage is that it cannot be fully utilised in thicker (usually greater than 50mm) plate. Examples of TMCR steels are AS/NZS 3678-400 and AS1548-7-490TL50. TMCR plate is often used in making locomotives and rolling stock.

NORMALISED ROLLED

The final supply condition, Normalised Rolled, is a rolling process whereby the finish rolling passes of the plate are tightly controlled so that they occur in a narrow range of temperatures just above the A3. In doing so, the mechanical properties of the plate are equivalent to that obtained by carrying out a Normalising heat treatment.

Furthermore, if the 'Normalised Rolled' plate was subsequently given a normalising heat treatment, the specified properties of the plate would be met. Normalised Rolled plate, therefore, offers a less expensive option than normalising as it eliminates the need for a subsequent heat treatment process.

Normalised Rolling is not effective in heavier gauge plate as it is difficult to get the required reduction through the thickness of the plate at the correct temperature (similar to TMCR). Hence to achieve the required properties in heavier gauge plate, it may be necessary to carry out a normalising heat treatment process.

An example of Normalised Rolled plate is AS 1548-PT460NR from the 2008 revision of AS1548. Examples of international grades that can be supplied are EN 10025-2-S355J2+N and EN 10028-3-P355NL. Normalised Rolled plate is often used in making pressure vessels.

In summary, although the various supply conditions of plate steel can seem confusing at first, when specified correctly, each leads to steel with the mechanical properties best suited to the unique demands of each project for the lowest cost.

John Dryden is the National Technical Manager Uncoated, of BlueScope Steel. His technical expertise is applied to XLERPLATE® hot rolled plate steel, manufactured to tolerances that conform to Australian Standards and ISO 9001 International Quality Standards.



to the sustainability issue aimed at lifting understanding of steel's environmental value in plain English.

"Every attempt has been made to include local examples and figures where practicable and pertinent," said Don. "There's a lot of conflicting information out there on evaluating 'green' materials, such as points schemes, embodied energy and other measures.

"We recognise that a life cycle analysis is the only real way that steel's recyclability gets properly accounted for and are currently working through the Building Products Innovation Council (representing major material suppliers) on this issue."

The new publication also talks about a number of major programs here in Australia, many driven by BlueScope Steel involving recycling water and waste heat to reduce the greenhouse gas and eco footprint of steelmaking.

SUSTAINABILITY SERVICES

Andrew Marjoribanks explained some of the approaches the ASI is taking. "Now that we have *Touching the Earth Lightly* on general release, our next task is to conduct sustainability seminars in each state commencing in early 2009.

"These will draw together the latest developments taking place and our members and other participants will be able to learn how these and the issues they raise will affect them and their businesses.

"This will be an important role for the group as sustainability in a steel context is emerging as a significant factor in many construction decisions," continued Andrew. "This trend is likely to continue and likely to evolve into regulation as it has done in many overseas countries and our members need to be kept abreast of these matters.

"As with safety, good environmental practice is everybody's business and the Sustainability Group intends to underline this by initiating a good sustainability practice award on similar lines to the ASI National OHS Awards program. This is so that everyone who works in our industry can be involved in improving our use of energy and materials."

Further details, visit Sustainability at www.steel.org.au

Touching the Earth lightly

With issues like carbon trading and embedded energy at the forefront of public debate currently, there has been no better time for Australian steel to mobilise an industry-wide and far reaching response on sustainability issues.

Enter the Australian Steel Institute's (ASI) Sustainability Group which was established in 2006 comprising environmental experts from Australia's two steel producers, as well as other recognised specialists from the field.

The group aims to positively differentiate steel in sustainable construction by influencing the construction industry's perceptions of steel and the treatment of steel in various environmental rating systems. This will help ensure that the material's sustainability credentials are fully understood and applied.

THE SUSTAINABILITY GROUP AT WORK

The group has chosen a two-pronged approach. The first involves promoting steel's role in improving the sustainability of buildings and other infrastructure by lifting awareness of its high strength-to-weight ratio and what that means for minimising foundation work, achieving wide column-free spans and generally offering greater design freedom to designers and architects. It also entails highlighting steel's unique reuse and recyclable properties and its superb capacity to facilitate design for deconstruction and reassembly.

The other involves representing the industry in forums and on bodies that are developing methodologies to measure environmental and sustainability performance. Representation in these areas is critical if the emerging systems are to be fair and based on a level playing field for all construction materials.

The ASI Sustainability Group also provides strategic direction and information on steel's environmental credentials to customers and others parties. Its membership is drawn from wide experience and expertise in environmental and sustainability affairs and comprises Ross Davies and Amy Luscombe from BlueScope Steel, Nick Fithall and Phil Ridgeway from OneSteel, Mick Clarke from Fletcher Building, Nigel Howard from Edgeenvironment, an acknowledged world expert on sustainability matters, and the ASI's National Marketing Manager, David Ryan. The group is chaired by Andrew Marjoribanks, a former long-time BHP Steel marketing executive and now a consultant in this field.

THE 'GREEN GUIDE'

The latest development from the group is the first dedicated publication on Australian steel's environmental credentials from an industry-wide perspective, a sixteen page brochure titled appropriately, *Touching the Earth Lightly*.

ASI Chief Executive, Don McDonald said that the new publication is the first real attempt to provide a steel industry-wide response

United Group Resources delivers for BP

United Group Resources has fabricated and delivered a major process unit for the BP refinery in Kwinana, WA.

The naphtha splitter column was constructed at the leading construction, engineering, asset management and maintenance provider's Kwinana workshop.

More than 200 tonnes of 460N Grade (normalised) XLERPLATE® steel went into fabrication of the unit's cylindrical shell and dished ends.

Because of the size of the finished vessel the shell was constructed in 3m by 4.5m diameter sections which were welded together to form the column in the horizontal plane.

United Group Resources (UGL Resources) project team leader Glenn LeMerle says the fabrication phase involved 20 employees working two shifts since November 2007. The installed naphtha splitter stands 64 metres tall, weighs 308 tonnes and holds a total volume of 1,000 cubic metres.

The smooth progress of the project has proven the value of UGL Resources' integrated engineering, fabrication and construction delivery model.

UGL Resources has wide experience in the mining and mineral processing, oil and gas,

chemical and industrial processing sectors. For the BP naphtha splitter column, it took responsibility for design, detailing, fabrication and delivery to site as well as providing much of the labour to erect the process unit.

"There are a lot of advantages with this approach," said Glenn. "With intelligent design we've been able to use 16mm, 20mm and 25mm XLERPLATE® steel at various points throughout the shell.

"This has helped to contain costs for our customer, but still provides the performance they require."

UGL Resources could have sourced the 460N Grade XLERPLATE® steel directly from BlueScope Steel by mill enquiry, but elected to leave that role to OneSteel Steel & Tube.

"BlueScope Steel and its distributor OneSteel Steel & Tube have a thorough understanding of what we require when we order steel," said Glenn.

DESIGN AND FABRICATION CHALLENGES

"Despite the grade requirements and non-standard sizes involved, everything was delivered as and when we needed it."

The project provided significant challenges for the company's combined design and

fabrication teams as the column required temporary support saddles, lifting attachments and complicated transportation requirements. It also involved close liaison with balance-of-plant design engineers Worley Parsons, in numerous 3D design review sessions, to refine the interface with the associated civil, piping, electrical and instrumentation works.

All internal and external attachments for the naphtha splitter column were fabricated from 350 Grade XLERPLATE® steel.

Internally, the column has been fitted with perforated process trays approximately every 450mm. On the exterior, nearly 300 square metres of platforms have been mounted in various segments.

"Fabrication of the column was completed on schedule by UGL Resources, with zero health and safety incidents and zero quality issues," says UGL Resources Workshop Services Manager Julian Bleddyn.

The splitter column is the largest vessel fabricated by UGL Resources to date. It was delivered to the refinery in July using heavy-lift specialised transporters.

The three kilometre trip involved the lifting and de-energising of power lines and civil works including the removal and replacement of traffic islands and traffic signals.



Beneath its shiny exterior more than 200 tonnes of XLERPLATE® steel went into the fabrication of the naphtha splitter



The splitter column was delivered to the BP refinery using heavy-lift specialised transporters

George Petley, Business Development Manager at Pacific Industrial Company



Fabrication – state of the industry perspective

George Petley, Business Development Manager at the Perth based Pacific Industrial Company (PIC), is an industry veteran, having worked in the steel business for 55 years. He spent 25 years in construction before moving into fabrication, giving him a thorough understanding of the industry from both fabricator and client perspective.

George notes that a key issue for fabricators and clients alike is ensuring that the right steel is used for each job. "The things we look for are quality, timely delivery and the capability to meet a client's specification for the job," says George. "One of the products we use is XLERPLATE® steel. With BlueScope supplying Australian made steel, the product arrives promptly and is guaranteed to be of a high quality."

George has witnessed vast developments during his time in the fabrication sector. He has seen the industry advance from "glorified blacksmith's shops with rudimentary tools" to today's sizable

facilities using leading edge Computer Numerically Controlled (CNC) machinery. "When I started in the business in the 1950s, many fabrication shops were working in the kind of conditions that would have been usual for the UK back in the 1920's such as dirt floors and over-head belt drives to machinery," says George. "The UK sent their old machines out to Australia when they were upgrading, meaning that we were always working with out-dated machinery."

TALENT POOL

Australian fabrication shops, however, have seen major advances in recent years and local operators are now highly geared in respect to modern equipment and facilities. There is a huge amount of talent in the Australian industry, where expertise has been built in even the most demanding areas of the job. "Welding and modularisation are by far the most challenging aspects of fabrication," says George. "Welding is a very technical process and it needs highly skilled people. If a weld fails then the whole construction could collapse, so it has to be done correctly."

PIC utilises the latest welding machinery and techniques and trains its staff on an ongoing basis. The company is committed to exploring advances in welding technique and passing the benefits on to its customers.

Another challenging aspect of the fabrication process is the trend towards modularised components. Modularisation refers to breaking down very large projects to a multiple of lesser sized components, before delivering them to the construction site for assembly. Construction work can take place more quickly when there are fewer pieces to assemble, cutting down on site costs for clients. George believes that there is more emphasis on modularisation in today's market. This is partly driven by the growth in fabricated steel imports. A lot of imported fabrications are now modularised and the Australian industry needs to rise to the challenge to remain competitive.

FABRICATION CHALLENGES

The fabrication of steel is a complex process and clients often rely on the expertise of the fabricator when starting work on new projects. The fabricators' estimators are often called upon to work from architect's plans, visualising how the construction will work in order to estimate fabrication requirements and pricing.

However, most of these 'estimators' are now in their 50s and 60s with a skill gap developing lower in the ranks. This leads George to worry that the current expertise held in Australia's fabrication sector will dwindle.

"A lot of fabricated steel is imported and it is starting to impact on the industry – we



Blast Furnace reline

are seeing fabrication shops closing up," says George. "We have seen a huge boom in demand for Australian steel but there is still not enough fabrication work to go around because this is taking place in other countries. The less work we get, the fewer apprentices we can afford to employ, meaning that the next generation of fabricators are not being trained."

TECHNOLOGY IN FABRICATION

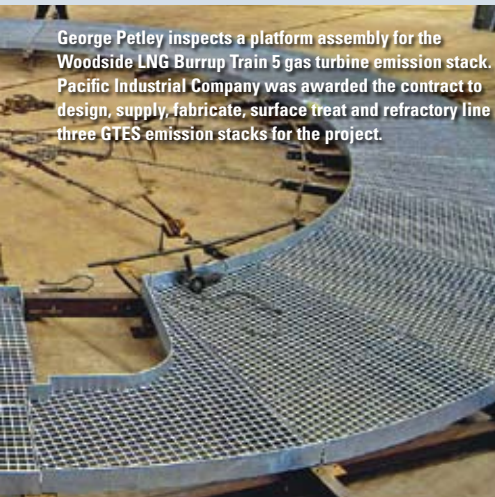
Another welcome development George has noted is the rising prevalence of technology in the industry. One example of this is the advent of 3D modelling by architects and engineers, offering benefits from conceptual design right through to shop detail drawings and procurement. Construction plans can now be modelled on a computer in 3D, rather than sketched. Dimensions and details are added as the model is passed from architects to engineers. This model will then go to a 'detailer' who will size it down to each nut and bolt, proving that the final components will fit together.

ELIMINATING MISTAKES

"It wasn't unusual to find beams out of place half way through a job so the last stage of construction was always correcting the mistakes," says George. "3D modelling eliminates this correction stage because the computer program picks up any mistakes before fabrication or construction begins."

George is a former West Australian chairman of the Australian Steel Institute and is immensely proud of what the Australian steel industry has to offer. He has seen it adapt and grow with the times and looks forward to seeing how it will continue to evolve to meet today's challenges.

George Petley inspects a platform assembly for the Woodside LNG Burrup Train 5 gas turbine emission stack. Pacific Industrial Company was awarded the contract to design, supply, fabricate, surface treat and refractory line three GTES emission stacks for the project.



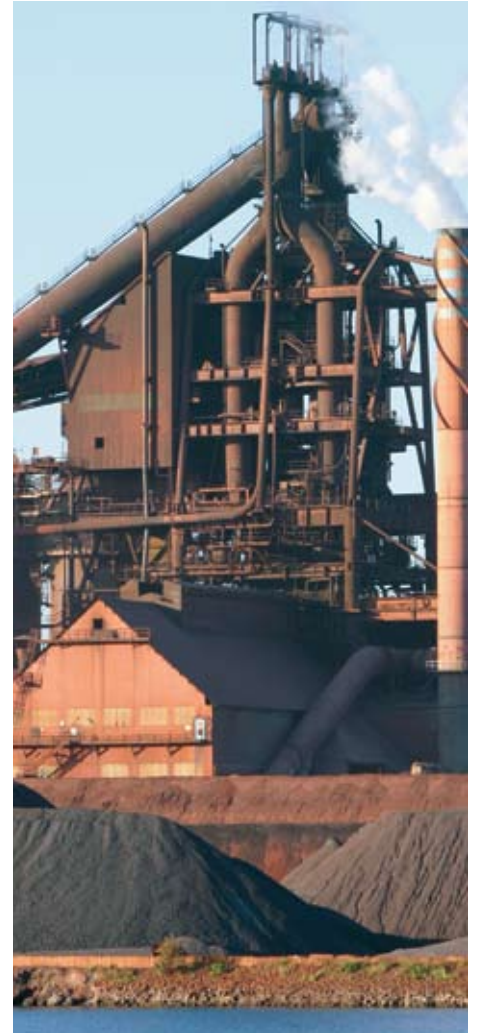
In March 2009, BlueScope Steel will begin the reline of its No. 5 Blast Furnace at Port Kembla Steelworks. The reline is scheduled to take 105 days to complete.

There will be sufficient capacity to satisfy this demand through the following measures:

- No. 6 Blast Furnace will operate at full capacity
- Sales to deep sea export customers will be reduced
- BlueScope offshore production facilities have largely secured alternate feed sources.

No.5 Blast Furnace, a key asset in the production of Australian steel, requires this essential maintenance to ensure the furnace operates through its next campaign life of 15 to 20 years at peak condition, with customer needs being comprehensively met.

During the reline, \$372m will be committed to overhaul and upgrade a number of major components. This includes replacing refractories and cooling elements inside the furnace, upgrading the gas cleaning system, changing to closed loop for a number of the water cooling systems and replacing refractories inside the hot blast main. The work will involve over 1,000 people, many of them local contractors.



CMC Coil Steels win ASI Safety Award

CMC Coil Steels won this year's ASI Safety Award to recognise their impeccable safety performance and improvements to their Erskine Park site.

Ashley Smith, the national operations manager at CMC Coil Steels, attributes the award to keeping projects small,

eliminating waste on site and running stock supply low (this helps CMC stay organised and decrease the risk of injury). This award, which BlueScope Steel's Port Kembla site won last year, rewards their on-site dedication to safety.



In the hotseat with Matthew Stewart



Job title: General Manager RPG-Australia Pipe Division

No. of years with RPG: One

My role and responsibilities involve: Managing a core group of people committed to the growth of the Pipe Division and delivering results that exceed the board's expectations

My greatest working challenge: Ensuring people enjoy coming to work and feel they contribute equally to the business's success

The secret to success is: Always remember that you never stop learning

I like steel because: It is what I have always been involved with and there are some great personalities you meet along the way

I start my working day by: Walking the dogs to clear the head

My favourite pastime: Currently it is learning to play the guitar

My favourite car: 1969 Ford Capri V6 GT

Last time I laughed out loud was: Every day, I may only be here for a short time, so I intend to get the best out of it

My favourite movie of all time: The Castle

My favourite food is: A stubby on a hot day ... they do say there's steak and eggs in every stubby

My earliest childhood memory: Coming from a family of nine kids, I still have nightmares remembering when my brothers left me hanging off the Hill's Hoist at full height

My secret talent is: Barry Gibb impersonation

XLERPLATE® steel National Sales team

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Test your Australian sports knowledge!

1. 'Out of my comfort zone' is the autobiography of which Australian sporting great?

Ian Thorpe
Steve Waugh
Shane Warne
Greg Norman

2. Which Australian tennis star is ranked third in the world for the most Grand Slam singles titles?

John Newcombe
Rod Laver
Roy Emerson
Ken Rosewall

3. Which Australian rugby player has scored the most points in one Rugby World Cup (1999)?

4. Which Australian swimmer is the only athlete to hold every world freestyle record from 100m to 1500m simultaneously?

Kieren Perkins
Ian Thorpe
Shane Gould
Murray Rose

5. In which sport did Steve Bradbury win an Olympic Gold Medal at Salt Lake City in 2002?

Athletics
Rowing
Speed skating
Swimming

6. Which of the following Rugby League Legends was known as 'The Old Fox'?

Dally Messenger
Gorden Tallis
Darren Lockyer
Harry Bath



Ian Thorpe

Answers: 1. Steve Waugh 2. Roy Emerson 3. Matt Burke 4. Shane Gould 5. Speed Skating 6. Harry Bath