

ON THE BEAM

EACH QUARTER, THE AUSTRALIAN STEEL INSTITUTE BRINGS YOU NEWS AND VIEWS FROM AROUND THE STEEL INDUSTRY IN OUR REGULAR COLUMN: ON THE BEAM. FROM PROJECTS WON AND COMPLETED, THROUGH TO NEW PRODUCT LAUNCHES AND COMPANY ANNOUNCEMENTS, YOU CAN FIND IT ALL HERE.

RAIL PROJECTS BACK STEEL MANUFACTURING JOBS IN SOUTH AUSTRALIA

Steelworkers in South Australia will manufacture 147,000 tonnes of steel for key rail projects across Australia, including the nation-building Inland Rail, providing an important economic boost for the state.

The Australian Rail Track Corporation (ARTC) recently signed a contract worth \$292 million with Liberty Primary Steel for the supply of heavy duty rail that will support 1,500 jobs in the coming years.

The Whyalla-based business will soon start rolling more than 147,000 tonnes of steel rail under the contract, including more than 110,000 tonnes for the remaining sections of Inland Rail. The contract will also support upgrades between Narrabri and Turravan, a vital connection between Inland Rail and the Hunter Valley coal network, and the Southern Highlands line in New South Wales.

Deputy Prime Minister and Minister for Infrastructure, Transport and Regional Development, Barnaby Joyce, said the latest contract further highlights how Inland Rail is already benefitting Australia. "Rail infrastructure keeps

Australia moving and our economy growing, which is why we're getting projects like Inland Rail done."

"Inland Rail will further strengthen our freight network, keeping supply chains open, providing exporters with better access to international markets and creating jobs and economic opportunities for businesses."

"This \$292 million contract is a vote of confidence in Australian manufacturing, ensuring the high-quality steel needed to bring Inland Rail to life is made by Australians for the benefit of Australians," said Joyce.

Liberty Primary Steel has previously supplied steel for Inland Rail, including contracts worth \$51 million for the Parkes to Narromine and Narrabri to North Star sections of the project.

Federal Member for Grey, Rowan Ramsey, said rail orders rolling into Whyalla is good news for the region. "Those orders in the period soon after GFG Alliance took ownership were vitally important to the survival of the steelworks. In recent times the facility has returned to profit and I am confident this profitability will result in the investment we require to ensure the steelworks' long-term viability."

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SPEEDPANEL® EMBRACING INDUSTRY 4.0 TO STREAMLINE STEEL PANEL MANUFACTURING PROCESS

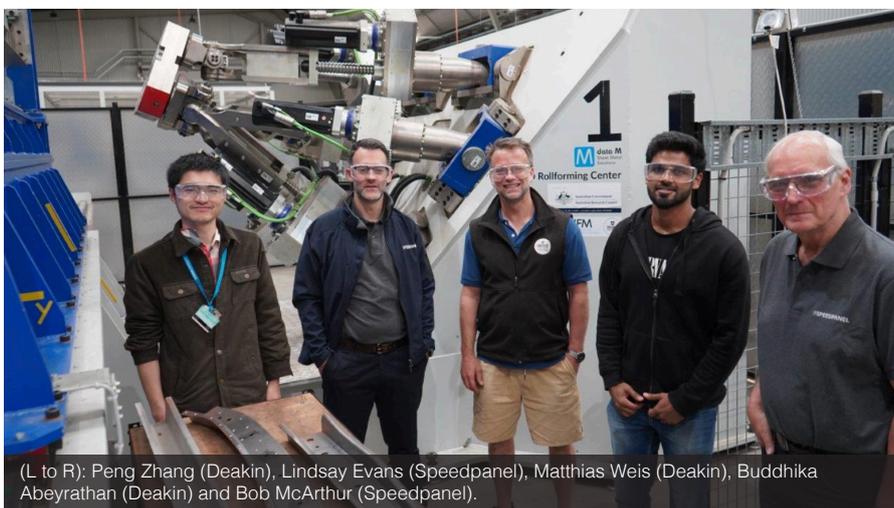
The Innovative Manufacturing Cooperative Research Centre (IMCRC) has granted cutting-edge fire rated and acoustic panel system manufacturer, Speedpanel, and Deakin University \$100,000 in funding to refine Speedpanel's steel panel manufacturing process.

During the 10 month research collaboration, the project team will use new steel forming and joining solutions to further enhance Speedpanel's production technology, with a focus on reducing waste and optimising and strengthening panel design. This research will also support Speedpanel's high-volume production output and enable the business to have a more refined platform for continued expansion locally and abroad.

Commenting on the project, Lindsay Evans, Speedpanel's Sales and Operations Manager, said the IMCRC activate funding would assist Speedpanel to further revolutionise the way it manufactures its fire rated and acoustic systems.

"By streamlining manufacturing processes with innovative joining solutions and advanced techniques for material monitoring and process control, we'll be able to evolve our product offering and bring a more environmentally friendly and sustainable panel system to market," Evans said.

"Tapping into Deakin's expertise in material analysis and forming process



(L to R): Peng Zhang (Deakin), Lindsay Evans (Speedpanel), Matthias Weis (Deakin), Buddhika Abeyrathan (Deakin) and Bob McArthur (Speedpanel).

control will enable us to assess and monitor material properties and key production parameters throughout the process to enhance process efficiency, enabling better quality control and reducing waste."

Matthias Weiss, Senior Research Fellow at Deakin University, highlighted the importance of connecting with the manufacturing industry on research and development (R&D) projects.

"Manufacturing large hollow sections of steel represents a major challenge for industry. With Speedpanel and IMCRC, Deakin University is helping to solve this problem by providing extensive support in material parameter monitoring and process control solution development," Weiss said. "We're also taking the findings from a previous Deakin University industry collaboration which has established a new and structurally optimised wall panel design and applying them to adapt Speedpanel's cutting-edge system."

Dr Matthew Young, IMCRC's Manufacturing Innovation Manager, said IMCRC was delighted to be co-funding the R&D required to advance Speedpanel's manufacturing process to improve design, manufacturability, and performance characteristics of the wall system to help expand markets and profitability.

"Speedpanel has been a market leader in conventional panel manufacturing methods for the past 20 years. In only 10 months, this research collaboration has the potential to deliver transformational change to the business and pave the way for future product developments," Young said.

"Supporting small to medium manufacturing enterprises like Speedpanel to embrace new technologies and the application of Industry 4.0 remains central to creating an Australian manufacturing sector that is thriving and globally relevant."

ABOUT SPEEDPANEL

An ASI member, Speedpanel is an Australian owned and operated manufacturer of cutting-edge acoustic and fire rated wall systems. Developed by a team with many years of construction industry experience, the innovation behind SPEEDPANEL® systems addresses the practical, real-world challenges faced by builders, contractors, architects and engineers alike. Speedpanel's lightweight composition, ease of installation and superior acoustic properties has seen its wide uptake throughout the building industry. The unique manufacturing process of each panel involves the joining of two individual roll formed steel profiles, providing flexibility to the finish of each wall as each panel can be manufactured using galvanised and coloured steels, or combinations of both. Coloured steel walls come pre-finished for either internal or external use without any need for additional surface treatments.

[CLICK HERE TO LEARN MORE ABOUT SPEEDPANEL >>>](#)



INFRABUILD CONTINUOUS IMPROVEMENT: TEAMWORK POWERS UP SUCCESSFUL TRANSFORMER INSTALLATION

Two Electric Arc Furnaces (EAF) located at InfraBuild's manufacturing sites in Sydney and Laverton are at the core of their steelmaking facilities. The seamless functioning of both EAFs is critical to operations and ensures InfraBuild customers are always supplied with quality steel products. Due to the critical nature of the EAFs, the installation of a new transformer has seen a major operational security risk eliminated at the Sydney Steel Mill.

During the Christmas/New Year shutdown at Sydney Steel Mill, the main transformer (TX1), which supplies power to the EAF transformer was upgraded. With the transformer's installation, the active power input into the Sydney EAF has increased from 56.2 MW to 61.5 MW. In production terms, this equates to an increase in billet production of around 45,000 tonnes per year.

Multiple, significant long-term benefits to InfraBuild include lower costs, increased self-sufficiency and a lower carbon footprint achieved through making our own rather than sourcing billet externally.

"By purchasing and installing a new, higher power No.1 transformer, the operational risk of an unplanned outage and having to operate at reduced capacity has been eliminated," explained the Project's Coordinator,

Gilbert Du. "Replacement of the No.1 transformer before failure has provided the site with a spare transformer sized for present operations and also provided us with a dedicated spare for the No.2 transformer."

The main transformer's installation was a large complex project requiring a team of people with highly specialised skills across a variety of engineering disciplines. The team required experience with heavy rigging, fit-up, cabling, isolation, instrumentation and PLC's (programmable logic control).

Along with the transformer change-out, the capacity of the high voltage switchgear was upgraded with improved safety features to handle increased loads (cabling, earthing, switchboard, protection panel and switches).

One of the most challenging aspects of the project was the late delivery of several essential components. The project team managed the delays well with parts air freighted to meet the installation deadline. The delivery of the disconnect switches, the HV Panel and the circuit breaker – manufactured in China, Italy and Germany, were all affected by COVID and difficult supply chains.

"It was 'touch and go' whether some of this gear would arrive in time and the team had to change plans a few times to cope with changing delivery dates," said InfraBuild's NSW Head of Rod and Bar Manufacturing, Steve Elliott.

"It was a combined stellar effort," Gilbert said. "The project team was able to navigate through multiple technical and logistical challenges and managed to complete the installation on time with a shortened shutdown timeframe."

The electricity which feeds the Sydney Steelworks is supplied at high voltage (132kV) and is stepped down, in two stages via large transformers, to the operating voltage of the EAF.

Condition monitoring on the primary step-down transformer (TX1) showed it was approaching the end of its expected service life (30+yrs). The failure of the transformer without a spare would've led to unacceptable business impacts. The secondary transformer (the 'engine' of the EAF) was upgraded a couple of years ago from 72MVA to 90MVA. However, the full benefit of this upgrade couldn't be realised until now due to the limited capacity and age of the TX1 transformer.

INFRABUILD'S NEW BILLET MARKING IMPROVES TRACEABILITY

InfraBuild is developing and implementing best-in-class traceability that will instil confidence in the design, quality, and sustainability of their steel products. Billet marking is one such example, providing traceability of steel heat numbers and safely confirming the right steel grade for the right end-product.

At the Sydney meltshop, the billet stamper has been replaced with an automated laser marking system to improve the quality and consistency of the markings. Following extensive research, the Electrical and Maintenance team at the Sydney meltshop installed the fully automated laser marking system. This system is fully automated and interfaces with the caster PLC.

Each billet is uniquely marked with the heat number, strand number, and billet number that can be read manually and by automated vision systems. Furthermore, a complimentary vision system recently installed at the rolling mill is currently being commissioned to accurately verify every billet.

Consequently, grade misidentification has been greatly reduced and the new vision system has resulted in the fully automated traceability of billets from the caster through to the reheat furnace. In automating the marking process, operators no longer need to perform a manual update for each heat and the increased accuracy and quality of marking will result significantly reduced manual stamping.

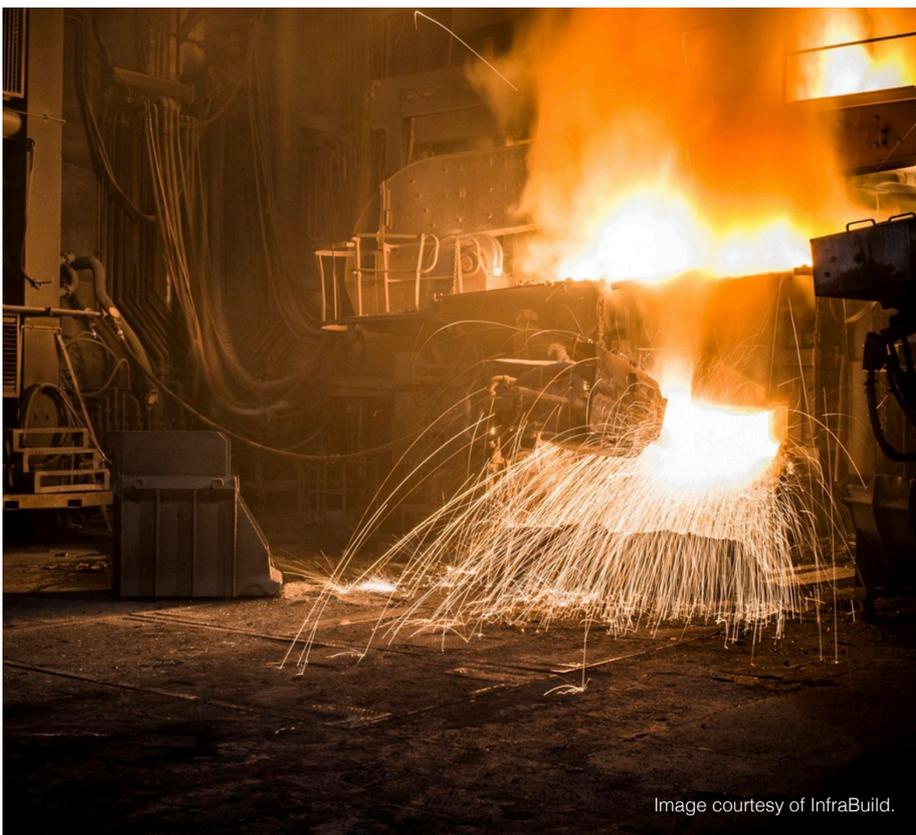


Image courtesy of InfraBuild.

RESPONSIBLESTEEL™ CERTIFICATION FOR PORT KEMBLA STEELWORKS

BlueScope's Port Kembla Steelworks and steel processing sites were recently awarded ResponsibleSteel™ site certification. ResponsibleSteel™ is the global steel industry's first sustainability standard and certification program. It has been designed by business, civil society, suppliers and consumers so they can be confident that the steel they use has been produced and sourced responsibly.

ResponsibleSteel™ site certification creates a valuable point of difference for the Port Kembla Steelworks, the first site in the Asia Pacific region, and the fourth steelmaker in the world to obtain certification. The independent, third-party site certification process has taken almost two years, involving multiple teams across the business. A rigorous audit of the 12 sustainability principles, which cover environmental, social and governance issues, has ensured that BlueScope is a world leader in steel sector sustainability.

BLUESCOPE IS COLLABORATING TOWARDS NET ZERO GOAL

BlueScope has commenced two important collaboration initiatives in the first quarter of 2022, signing memoranda of understanding with Rio Tinto to explore technological and process options for low emissions steelmaking, and with Shell Energy Operations (Shell) to explore and develop renewable hydrogen projects at Port Kembla. The projects will focus on piloting an industrial scale 10MW hydrogen electrolyser, hydrogen direct iron reduction furnace and iron melter, all powered by renewable electricity. Working with Shell, BlueScope will also seek to collaborate further with governments, private enterprise and research institutions to develop a hydrogen hub in the Illawarra.

BLUESCOPE'S BLAST FURNACE RELINE PROJECT ENTERS FEASIBILITY ASSESSMENT

BlueScope expects that breakthrough steelmaking technology will continue to develop over the current and following decade, with significant take-up across the steel industry predicted into the 2040s. Given this timeframe, BlueScope is now transitioning to a full feasibility assessment of a reline and upgrade of the currently mothballed No. 6 Blast Furnace (6BF) at Port Kembla.

A relined 6BF will secure BlueScope's domestic ironmaking needs from 2026. The blast furnace campaign life of up to 20 years aligns with



BlueScope's decarbonisation strategy and 2050 net zero goal, and provides a challenging but credible timeframe for the development, scaling and commercialisation of new low emissions technologies. The reline does not lock BlueScope in to blast furnace steelmaking for the full 20 years if technology is ready earlier. However, achieving this will be dependent on several enablers including access to low cost green hydrogen, firmed and affordable renewable energy, the development of suitable raw material supply chains and appropriate policy settings.

The 6BF reline project scope is broader than a typical reline and the feasibility study will examine a comprehensive upgrade of the blast furnace facility and related infrastructure, including comprehensive technical and environmental upgrades. This includes improved environmental controls for water and air quality management and technologies that will be key enablers of medium to longer-term opportunities to reduce Port Kembla Steelworks' greenhouse gas intensity. These opportunities are part of a broader suite of climate-related projects at Port Kembla that have the potential to reduce greenhouse gas

emissions intensity by up to 20 per cent (percentage intensity reduction on 2018 emissions base). Partnerships and collaborations with governments, technology vendors and industry bodies will be crucial to making sure that they are ready to implement the best available technologies.

BlueScope now estimates the preliminary indicative cost for the reline and upgrade project at around \$1 billion, up from the initial indicative range of \$700 to \$800 million. The increase is due to both a broadening of the scope, including environmental upgrades, and more refined costing of the required works. The estimate includes over \$100 million of measures directed at environmental efficiency improvements.

Detailed design and execution will be progressed across the next 12 months at a cost of approximately \$50 million. Capital expenditure is expected to peak in the 2024 and 2025 financial years, with around 50 per cent of total spend during that period. BlueScope will also proceed to commit during the 2022 financial to around \$120 million of spending on long lead-time items, which are critical to the availability of 6BF ironmaking capability from 2026.