

BORAL NEWS



APR 2018

A DAY IN THE LIFE OF
BORAL RECYCLING

INTERVIEW WITH
USG BORAL'S
VP MANUFACTURING

PROTECTING CULTURAL
HERITAGE IN AUSTRALIA

LIFE AND TIMES OF
WAURN PONDS CEMENT

MEETING DEMAND, TODAY AND INTO THE FUTURE

Investing in our North American
Building Products businesses



Strategy and the Fog of War

I am currently reading Sir Lawrence Freedman's book "Strategy: A History", which captures the vast history of strategic thinking in war and international politics through to business strategy.

At Boral our strategy has been about *Fixing, Executing* and *Transforming* our business and ourselves for almost six years now, and at times we appear to be doing all three simultaneously.

We would like to think we could knock off these tasks one at a time, but we find that new circumstances, new challenges and changed conditions require that we go back and fix things we thought we were done with, and transform things that weren't in the initial plan but are now vital to success.

Business strategy, like military strategy, involves a wide range of uncertainty.

"There are known knowns. These are things that we know that we know. There are known unknowns. That is to say, there are things that we know we don't know. But there are also unknown unknowns. There are things we don't know we don't know."
– Donald Rumsfeld, US Defense Secretary (Retired).

While strategy tends to be grounded in things that 'we know that we know', there are the 'known unknowns' like weather, unanticipated technology threats or even failures in execution. And then there are the truly 'unknown unknowns' which are generally unanticipated, like earthquakes or geopolitical setbacks.

So crafting a strategy and the associated tactics necessary to execute it should broadly presume that plenty of uncertainty will be encountered as any strategy is implemented.

Our ability to embrace ambiguity and see risk as a companion on any journey will help prepare us to face challenges with confidence and dispel doubt. Wherever you happen to be in Boral today, rely on your training and don't be concerned if you have to radically alter the plan to meet a new reality.

Don't get discouraged. Whatever the new challenge, it generally has embedded in it something you need to learn.



Mike Kane
CEO & Managing Director

"War is the realm of uncertainty; three quarters of the factors on which action in war is based are wrapped in a fog of greater or lesser uncertainty."

– Carl von Clausewitz, Prussian General

FRONT COVER IMAGE:
Gordon Gammage, Plant Operator at
Boral Recycling's Widemere, NSW, facility

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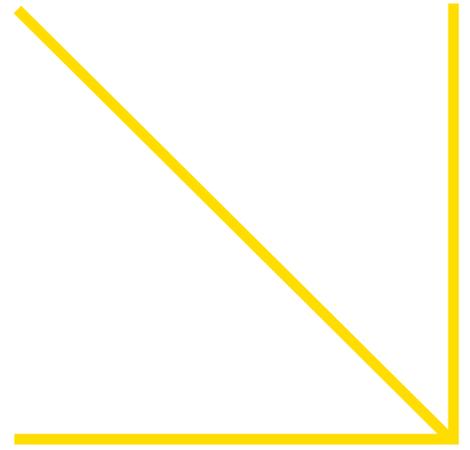
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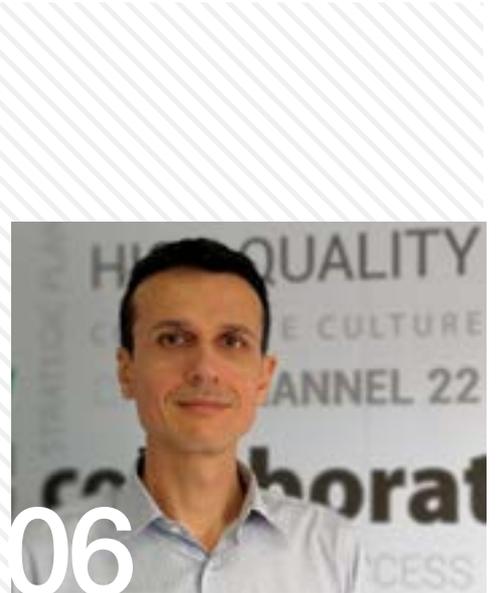
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Inside



16



06

Features

05
Warrn Ponds cement works: the life and times
From 1964 to today at our Victorian cement facility

08
Meeting demand for US building products
We're investing today to ensure an even brighter future

16
A day with the Boral Recycling team in NSW
How we manage construction and demolition waste

18
Protecting cultural heritage at our Australian sites
Recognising Indigenous heritage across the country



03

Regulars

- 02 NEWS
- 03 PRODUCTS
- 04 PEOPLE
- 06 PROFILE
Regis Humbert, Vice President, Manufacturing, USG Boral
- 14 ZERO HARM TODAY
- 20 IN THE COMMUNITY

TAKE FIVE

Five interesting projects across Boral



Cement, quarry materials and concrete supplied to Pacific Highway, NSW, upgrade (Oxley Highway to Kundabung)



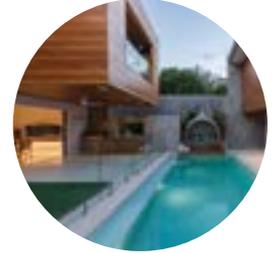
USG Boral supplied Durock® Cement Board for external use to Ayana Komodo Resort, Indonesia



Hula Grill in Maui, Hawaii, features Inspire Roofing Products by Boral in Arcella™ Shake synthetic slate roof tiles



Krestmark® Series 200 vinyl windows used on residential apartments in Dallas, Texas



Perth, WA, home features Blackbutt hardwood cladding from Boral Timber

Driving transformation and innovation in Australia

Boral Australia is developing a platform to support transformation and innovation across the business, as part of the group's effort to build a culture of performance excellence and ensure more sustainable growth.

Led by Paul Dalton, Executive General Manager, Transformation and Innovation (T&I), a team of strategy and technical experts and project specialists are focusing on Supply Chain Transformation,

Commercial Excellence and Innovation.

"The T&I team is focused on developing the three strategic enablers to realise Boral Australia's aspiration to become the undisputed leader in construction materials," said Paul.

The team will be based in the Port Melbourne and North Sydney offices and a new innovation co-working hub known as B/HUB in Lavender Bay, NSW. ■



Boral Australia Executive General Manager T&I, Paul Dalton with Divisional Chief Executive Joe Goss at the B/HUB facility

Overview of T&I programs

Supply Chain Transformation

(program manager Craig Wickham): Transforming our supply chain to deliver customer centricity and value.

Commercial Excellence (program manager Dean Chandler):

Establishing a system for helping our people to become more commercial.

Innovation (B/HUB) (program manager Paul Dalton): Harnessing innovation to achieve growth and renewal, create customer value, and commercialise our ideas.

USG Boral to expand production in Vietnam

With growing demand for high-quality plasterboard in Vietnam, in late 2017 USG Boral announced plans to expand production with a US\$20 million investment in our Ho Chi Minh City plasterboard plant.

The manufacturing line which was mothballed in 2014 will be refurbished to have annual production capacity of 17 million square metres. Adding to the current capacity of 30 million square metres per year, it will become the largest plasterboard plant in the country.

"We've witnessed strong growth from this region so our decision to invest in the plant is a strategic one," said USG Boral's CEO Frederic de Rougemont. "This expansion will see USG Boral utilising our latest

Sheetrock® technology to provide superior building solutions for Vietnam."

USG Boral Vietnam's General Director Tran Thanh Sang said, "We've seen demand for building materials rise rapidly in Vietnam's expanding construction industry. This new capacity will allow us to continue to provide high-quality products and services to our customers."

The new facility aims to commence operations in late 2019. ■

Better together: Boral Australia and Google

In 2018 Boral staff in Australia will be able to work together more collaboratively thanks to Google's cloud application platform G Suite.

It will allow employees to connect and seamlessly share ideas, documents, presentations and other resources through a suite of online collaboration tools – available on any device, anywhere and at any time.

Approximately 750 'early adopters' from across Australia have been using G Suite since late 2017, testing the new applications and providing feedback to the Boral Digital Solutions project team, ahead of a broader roll-out

to all Boral Australia staff which will be completed by mid-2018. Many of these early adopters have also volunteered to become 'Google Guides' to help their colleagues with the transition to G Suite.

Boral Australia's Chief Information Officer William Payne said, "We're excited to be partnering with Google to help make Boral more effective in how we work together. The new G Suite tools will help us work smarter by making it easier to share ideas and capabilities across businesses."

If you have any questions, please contact BDSDigitalWorkplace@Boral.com.au ■



New SOHO® Porcelain Pavers

Capturing the essence of natural stone, Boral's new SOHO® Porcelain Pavers add elegance to landscape design.

The pavers combine the aesthetic of precious natural stones and the texture of sedimentary and calcareous stones, to create depth and visual interest in outdoor spaces like patios, pools, paths and driveways.

Available in three natural, chromatic hues with carefully balanced warm and cold tints, the modern outdoor tiles are a versatile, low maintenance choice for refined outdoor design.

Offering flexible installation options, they can be laid on crushed rock or sand, adhered to concrete screeds or fixed on pedestals. SOHO® Porcelain Pavers are now available in New South Wales, Victoria, Queensland and South Australia. ■



Boral SOHO® Porcelain Pavers in Prince

Additional TundraBrick® colours by Eldorado Stone

The classically-shaped profile of the TundraBrick® contemporary brick veneer range is now available in two new modern tones.

The striking black Ironside provides a matte black option with red undertones, while the cool multi-coloured Latigo creates earth tones with white, touches of ivory and shades of grey.

Developed as customer-driven colour options, the new colours extend the TundraBrick® colour palettes and continue our innovation beyond traditional clay brick tones and textures.

A definitive brick with distressed surfaces and slightly squared edges, the TundraBrick® profile offers a contemporary option for indoor and outdoor applications and is available all across the USA. ■



Eldorado Stone's TundraBrick® in Ironside

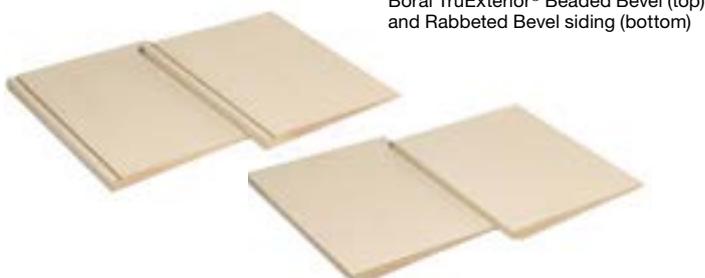
New profiles in TruExterior® Bevel Siding

The popular Boral TruExterior® Bevel Siding line in the USA has expanded with the addition of two new profiles. Both combine authentic wood looks with the high performance, moisture resistance and durability of Boral's proprietary blend of polymers and fly ash.

Beaded Bevel adds a bead to the bottom of the 6-, 8-, and 10-inch Bevel profiles, mimicking a popular but hard-to-find wood style which is a historically-accurate detail for Craftsman, Colonial and other traditional-style homes.

Rabbeted Bevel is also available in all three Bevel siding sizes, and includes a pocket on the back that nests into the board below, pre-setting each board to the proper spacing. The profile ensures an accurate, consistent reveal while making installation faster.

Like all TruExterior® Siding, both Beaded and Rabbeted Bevel have a high level of dimensional stability for reduced expansion and contraction, and durability for resistance to warping, cracking and splitting. The siding requires no sealing of ends or cuts in the field, can be used in ground-contact applications and can be painted any colour. ■



Boral TruExterior® Beaded Bevel (top) and Rabbeted Bevel siding (bottom)

New Baffle Metal Ceiling range

USG Boral's Baffle Metal Ceiling range consists of three profiles – Simplicity, Streamline and Slim – all of which are customisable to help achieve a unique, modern look in commercial spaces.

Available in a range of heights, the style and spacing of the Baffle range are customisable and the system can be installed on vertical or curved surfaces. The simple design provides easy access to enclosed plenums in the likes of offices, restaurants and transportation centres.

Offered in numerous colours, including various wood looks, it's available in 10 countries across Australasia, Asia and the Middle East. ■



College in Cranbourne, Victoria features Streamline Baffles (Aluminium) in Chestnut Woodgrain

DID YOU KNOW?



BORAL AUSTRALIA'S HEAVY VEHICLES ON THE ROAD ON A TYPICAL WORKDAY



USG BORAL REVENUE FROM NON-PLASTERBOARD PRODUCTS AND SERVICES

Careers and support for ex-defence personnel

In January Boral Australia welcomed Warrant Officer Class One David Galloway, OAM, for a 6-12 month placement as part of the Australian Army's Senior Leader Fellowship Program.

The program provides high performing Defence personnel with an opportunity to work in the private sector as part of their leadership development.

David has served in the Australian Army for more than 35 years in various infantry roles, from Rifleman to Regimental Sergeant Major (RSM) with senior RSM appointments including Army Recruit Training Centre, Combat Training Centre and Forces Command. He joins Boral Australia as National Leadership & Development Advisor reporting to Bill Fisher, Executive General Manager, Human Resources (HR) & Health, Safety and Environment.

"We're privileged to have David choose Boral for this important placement and look forward to him sharing his perspectives on leadership with our people," said Linda Coates, Boral's Group HR Director.

David's placement was facilitated by our membership of the Prime Minister's Veterans' Employment Program, which was established to boost employment of veterans in Australian companies.

Boral also established a Defence Employment Initiative in 2017 to improve our approach to recruiting and supporting veterans in employment. This includes Boral's Defence Force Alumni which aims to engage and connect former or current Defence Force members at Boral.

For more information, please contact Kathy Mackay, Group Learning Manager at kathy.mackay@boral.com.au ■



Marulan Citizen of the Year!

Congratulations to Boral Australia's Sharon Makin who was recently honoured as Marulan's Citizen of the Year! Sharon, based at our Peppertree Quarry in the NSW Southern Highlands and Tablelands region, was recognised for her contribution to the Marulan community, as both Boral's Stakeholder and Environment Advisor – Marulan South and in a personal capacity.

In 2017 she organised the Marulan Kite Festival, spearheading the co-ordination of activities, stalls and sponsors, as well as Boral's kite-making competition on the day. With Boral Sharon's also been involved in the Marulan South Reunion, Tallong Apple Day and the Tallong Memorial Park, and she personally volunteers as secretary of the Robertson Agricultural Show.

"I am extremely humbled that the community think I'm worthy of being their citizen of the year," said Sharon. "Our stakeholder engagement plan is about being an active part of the community and making the villages of Marulan, Tallong and Bungonia great places to be."

Peppertree Quarry Manager Angus Shedden said, "Sharon has been the face of Boral in the local community since the construction of Peppertree Quarry started six years ago. It's a result of her hard work that we're able to operate two of the largest quarries in our portfolio and have a local community that makes us feel welcome." ■

Darren Schulz heads up North America Roofing

Darren Schulz has returned to Boral in the role of Business Unit President, Roofing, after spending the past three years as President & General Manager of Fletcher Building's Roof Tile Group.

Darren was previously with Boral in the USA and Australia from 2002 to 2014, with roles including Vice President Performance Management, Boral Limited and Executive General Manager, Boral Building Products in Australia.

Mike Kane, Boral's CEO and Managing Director said, "I welcome Darren back to Boral. With his strong business knowledge and experience in roofing in North America, I'm certain he will drive synergy delivery and operational improvements in the roofing business." ■



Boral and Habitat for Humanity to Rock the House again!

For the third year in a row, Boral is sending a team of Australian employees to Indonesia with Habitat for Humanity Australia to help build homes for a community in need.

In October 2018 a new team of Boral and USG Boral employees will help build a home with a partner family in a rural village near Yogyakarta. This will be our fifth house in this community!

Online, video and paper applications to be part of the 12-person Team Boral for Rock the House III will open to Australian employees in May 2018. For more information, contact habitat@boral.com.au ■



Half of Team Boral from Rock the House 2017 in Yogyakarta



THE LIFE AND TIMES OF WAURN PONDS CEMENT



Located about an hour south-west of Melbourne, the Waurn Ponds cement works were established in 1964 by the Victorian Portland Cement Company.

The facility comprises a clinker kiln, two mills, a limestone quarry, silo storage and rail sidings.

The cement works were acquired by Blue Circle Southern Cement in 1974, which was then subsequently bought by Boral in 1987. It supplies our Victorian concrete plants with cement via road tankers, and sells cement products, as well as lime and limestone, to external customers.

Boral stopped manufacturing clinker at Waurn Ponds in 2013 due to the rising costs of labour, energy and raw materials which increased the cost of clinker production, making it harder to compete against cheaper imports. It has been operating as an imported clinker milling facility since.

In early 2018 Boral announced the intention to close Waurn Ponds, replacing it with a new clinker and slag grinding and cementitious storage facility at the Port of Geelong. The planned investment of up to approximately A\$130 million remains subject to regulatory approvals and final contract negotiations.

“The new facility will allow for long-term growth and increased flexibility in our cement supply network,” said Boral Australia’s Executive General Manager, Cement,

Ross Harper. “It is expected to lower the cost of delivered cement, increase production capacity to meet future demand and expand Boral’s cement product offering.”

The port facility would eliminate road transport of imported clinker and reduce handling costs. The new, modern milling plant will have capacity of 1.3 million tonnes per annum, compared to the existing mill which is currently running at full capacity of around 750,000 tonnes of cement per year. It will also incorporate storage of raw materials including clinker, slag, gypsum and limestone.

Following the anticipated closure of the Waurn Ponds site, Boral has earmarked A\$24 million for the rehabilitation of the limestone quarry, which includes filling the quarry voids. In this process Waurn Ponds may still be able to generate revenue by capturing spoil and fill materials from local tunnelling projects under Boral Property Group’s ‘Earth Exchange’ program.

Under the program Boral seeks to neutralise part of the costs of quarry rehabilitation with infrastructure project consortia, like those for the West Gate Tunnel and Melbourne Metro, potentially paying us to take their tunnel spoil.

Boral is investigating the use of the existing rail siding at Waurn Ponds to move up to 4.5 million tonnes of spoil from these major infrastructure projects. This could eliminate up to 400,000 truck movements from the already congested west Melbourne roads and prevent delays given the rail siding can operate 24 hours a day, seven days a week.

Recognising the community and environmental impacts of road transport associated with major construction projects, Boral is working with rail providers on materials transport options across a range of infrastructure projects planned over the next 10 years in Melbourne.

“A rail solution can be commercially-, community- and environmentally-friendly,” said Boral Property Group’s National Void Rehabilitation Manager Andrew Bondini. “Discussions are continuing with the construction consortia and government bodies about the program.”

The eventual close of the cement works signals a new era for the Waurn Ponds site, with the potential to provide significant future earnings for Boral. ■



REGIS HUMBERT



Recently promoted to the role of Vice President, Manufacturing for USG Boral, Regis Humbert has worked for almost two decades in the plasterboard and gypsum industry in Europe, North America and Asia.

Based in Vietnam, he is responsible for all manufacturing activities – including plasterboard, metal products, compounds and gypsum mining – across 13 sites in Asia, Australia and the Middle East.

Boral News caught up with Regis during his busy travel schedule to talk about his international career and the evolution of the industry.

BORAL NEWS: Tell us about your career and your roles with USG Boral.

REGIS HUMBERT: I started in the industry about 20 years ago, initially with Lafarge in Europe and then in North America, working across manufacturing operational roles that ranged from quality to production.

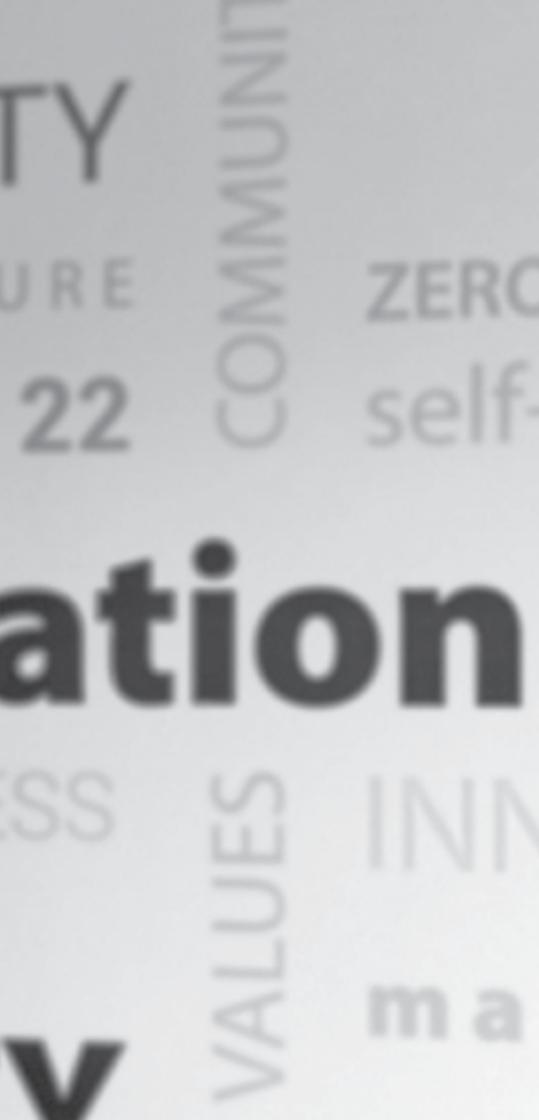
I moved to Lafarge Boral Gypsum in Asia eight years ago, starting off as a plant manager in Indonesia and moving on to regional manufacturing director for Boral. In January this year, I took up my current role with USG Boral, in charge of manufacturing across the Middle East, South Asia and Australia/New Zealand.

I'm now based in Vietnam, but the job involves a fair amount of travel.

BN: What are the highlights of your international industry experience?

RH: A few things stand out for me. First is the work we've put in collectively as an organisation to improve our safety performance. While we've made great strides, more work lies ahead to achieve Zero Harm each and every day.

It's hard to pinpoint one but generally it's the challenging appointments I find most rewarding in the end – the assignments



where you come in to help make a difference to the business.

Having worked across three continents, I'm acutely aware that every country and culture is different, and you have to adapt to those differences in the workplace.

BN: How has technology impacted the industry?

RH: Surprisingly, the principles of plasterboard making haven't fundamentally changed in over a century. But technological improvements have resulted in significant incremental changes over the years. It means we can now make products that are better and lighter at a lower cost. The performance-to-price ratio has improved significantly thanks to these technological changes.

BN: What have been the most important innovations in the plasterboard industry?

RH: Without a doubt, the fact we can now make much lighter, high-performance boards. Our US partner, USG, has been leading the way in this technology and the difference these new, lighter boards make is significant.

But first and foremost, innovations must meet local customer needs. In South East Asia, for instance, our new sag and mould-

The most exciting product is always the next one; the one that will further meet the needs and the expectations of customers.

resistant products have a bright future given the challenging weather conditions.

BN: How do you manage manufacturing processes across so many different countries?

RH: The biggest challenges have to do with language and culture. Sometimes just communicating can be difficult. What we take for granted in one culture doesn't always translate into another, so you have to be very careful about this.

In safety in particular, acceptance of risk can vary significantly from country to country. It's a challenge to implement risk management properly in that regard.

So to make sure that the right decisions are made locally, we share widely a very clear set of manufacturing priorities: Safety, Quality and Cost, in that order. In addition to our company core values, this translates very easily in any cultural environment and guides everything we do.

BN: What LEAN manufacturing tools are a priority for the business?

RH: The beauty of LEAN is that it helps us align everything we do, regardless of cultural differences or language. When it's well implemented, LEAN manufacturing is self-sustainable and easy to replicate from site to site. In that regard, visual

management, error proofing and standard work are excellent tools to apply to our safety and quality priorities.

BN: What were some of the challenges in the Sheetrock technology roll-out?

RH: There were some challenges with existing plants at various stages of technology and automation. But overall the implementation has been surprisingly smooth. We received great initial support from our USG colleagues in the US and our engineering group did an excellent job becoming self-sufficient quickly.

Now that we've rolled it out in all plants, we're benefiting from a much better process capability. Quality is more stable, and our plants are able to make products that are consistent, perform better and at a competitive price.

BN: What new USG Boral products are you most excited about?

RH: The most exciting product is always the next one; the one that will further meet the needs and the expectations of customers. The challenge is to always stay ahead of the curve. We're continuously developing, testing and launching new products in new markets.

BN: What advice would you give someone starting out in the industry today?

RH: The best advice I could give someone starting out in this business is to be patient! There's a lot to learn, so take your time. It's also important to be curious, to ask questions and to always want to keep learning.

The best piece of advice I got early in my career was to focus not on process but on people. The reality is that technically, we can fix anything but in the end only people can make a real difference.

BN: What do you like to do in your spare time?

RH: Not travelling for sure! I spend as much of my free time as possible with my family. We're very fortunate to live in Ho Chi Minh City – the quality of life here is very good, especially for families. ■



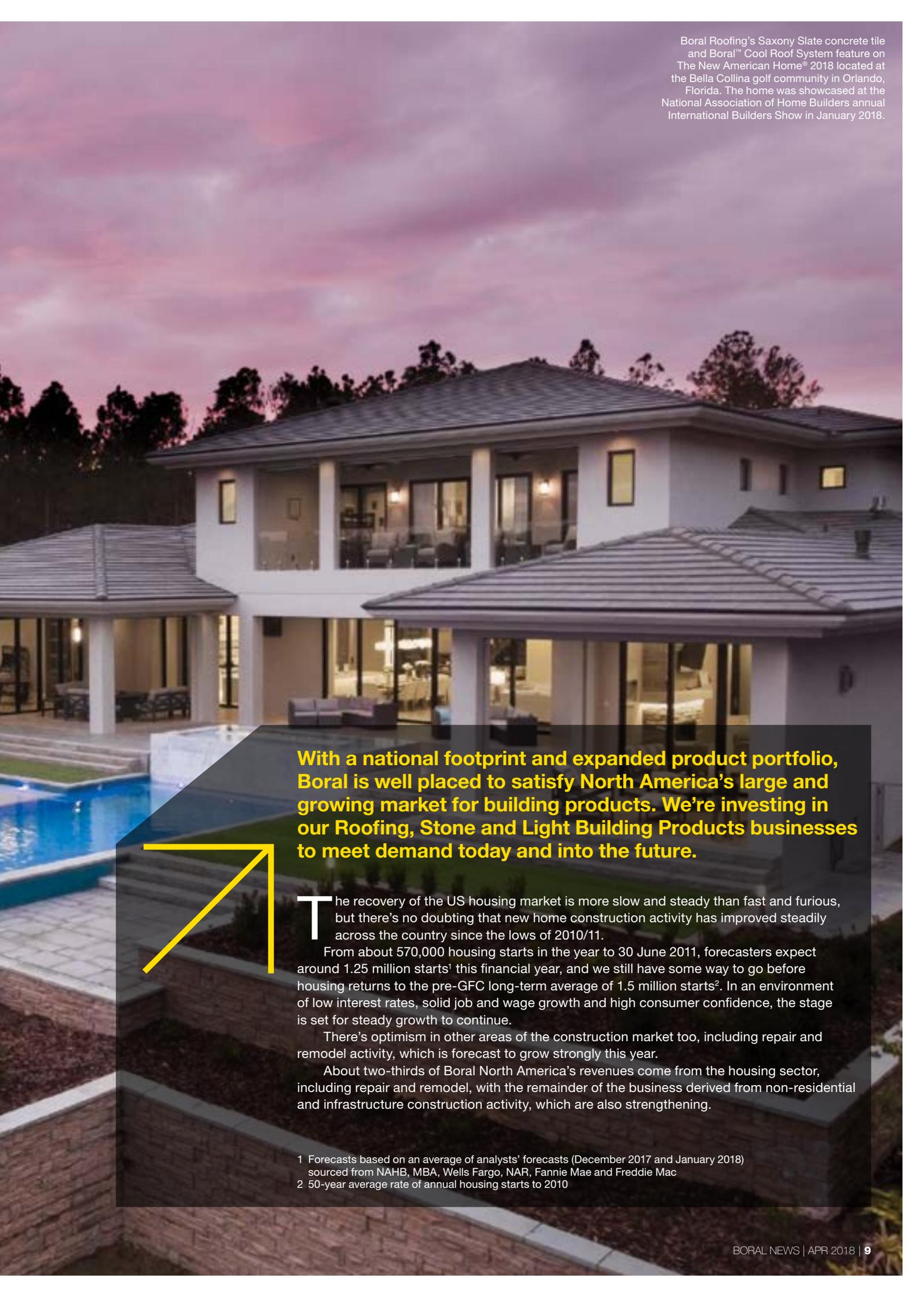
Meeting demand, today and into the future

Investing in our North American Building Products businesses



For a relative sense of the scale of the market, compare the USA's typical high point of around 2.0-2.2 million housing starts a year to the Australian record and peak of 233,000 starts in FY2016.

Boral Roofing's Saxony Slate concrete tile and Boral™ Cool Roof System feature on The New American Home® 2018 located at the Bella Collina golf community in Orlando, Florida. The home was showcased at the National Association of Home Builders annual International Builders Show in January 2018.



With a national footprint and expanded product portfolio, Boral is well placed to satisfy North America's large and growing market for building products. We're investing in our Roofing, Stone and Light Building Products businesses to meet demand today and into the future.

The recovery of the US housing market is more slow and steady than fast and furious, but there's no doubting that new home construction activity has improved steadily across the country since the lows of 2010/11.

From about 570,000 housing starts in the year to 30 June 2011, forecasters expect around 1.25 million starts¹ this financial year, and we still have some way to go before housing returns to the pre-GFC long-term average of 1.5 million starts². In an environment of low interest rates, solid job and wage growth and high consumer confidence, the stage is set for steady growth to continue.

There's optimism in other areas of the construction market too, including repair and remodel activity, which is forecast to grow strongly this year.

About two-thirds of Boral North America's revenues come from the housing sector, including repair and remodel, with the remainder of the business derived from non-residential and infrastructure construction activity, which are also strengthening.

¹ Forecasts based on an average of analysts' forecasts (December 2017 and January 2018) sourced from NAHB, MBA, Wells Fargo, NAR, Fannie Mae and Freddie Mac
² 50-year average rate of annual housing starts to 2010



Optimising our production capabilities

With growth in demand being felt across the board in Boral North America, our Roofing, Stone and Light Building Products businesses have recently invested in a number of low-capital cost plant upgrades to expand or optimise production capacity, and to enable the supply of new products.

“With the Headwaters acquisition completed in May 2017, we’ve made a transformational shift in our ability to meet demand and, more importantly, generate earnings through the cycle,” said David Mariner, President and CEO of Boral North America.

“As demand grows we’re investing in our more variable, lower fixed cost asset portfolio so we can ramp production up or down as demand requires,” explained Chris Fenwick, Group President Building Products. “We now have more flexibility to capitalise on any point of the cycle. This was a key strategic deliverable for our North American business as we recovered from the US housing downturn.”

Let’s look at the how the Building Products businesses in the US are preparing for growth.



David Mariner, President and CEO, Boral North America

Chris Fenwick, Group President Building Products, Boral North America

“We’ve made a transformational shift in our ability to meet demand and, more importantly, generate earnings through the cycle.”

David Mariner, President and CEO, Boral North America



Top: Saxony concrete roof tiles at the Lake Wales, Florida plant
Above: The upgraded line at the Lake Wales concrete tile plant
Inset: Saxony Country Slate concrete tile

Roofing – Florida, Arizona and California upgrades

Boral now sells roofing products across the USA and Canada and exports to the UK, offering concrete, clay, stone-coated metal and composite roof tiles, and associated roof system component products.

“We’re offering a larger, and growing, selection of high-performance roofing solutions across North America,” said Darren Schulz, Boral Roofing President. “Our combined manufacturing network is being rationalised while we’re also overseeing a number of upgrades to our manufacturing network.”

At the concrete roof tile plant in Lake Wales, Florida, for example, Boral Roofing upgraded an idled production line in 2017 to keep pace with increasing demand, particularly in North Florida where demand is moving away from asphalt roofing products to concrete roof tiles.

The upgrade has cut operating costs by eliminating the need for profile changeovers on a previously shared production line. Line 4 now solely manufactures the rustic Spanish-look Barcelona tiles while the upgraded Line 3 manufactures an enhanced strength design of the Saxony flat concrete roof tiles. The plant also features a new robotic packaging and banding system, which we will introduce at our other roof tile plants to automate the packaging process.

“The upgrade means the plant can now reach a maximum annual production capacity of 850,000 squares³ and will be able to meet growing demand over the next five years,” said Tim Kunstel, Boral Roofing’s Vice President of Manufacturing.

3 One ‘square’ is equal to 100 square feet

“We’re offering a larger, and growing, selection of high-performance roofing solutions across North America.”

Darren Schulz, President, Boral Roofing



Left: Concrete tile plant in Phoenix, Arizona
Below: Boral Steel™ Cottage Shingle metal tile panel



At the Phoenix, Arizona, concrete tile plant, 20-year-old curing plant and equipment were upgraded in April 2017, resulting in a safer work environment with better product quality control, standardised equipment and improved energy efficiency. The improved curing monitors the humidity and temperature to provide consistent colour performance.

An addition from the Headwaters acquisition, the metal roofing portfolio is being relaunched in 2018 under the new Boral Steel™ brand with a more streamlined product offering. Produced at the Oceanside plant in California, stone-coated steel roofing products are sold all across North America. Boral Steel™ will relaunch with five tile profiles which are lightweight, hail impact resistant, hurricane and fire rated, and energy efficient.

The plant is currently upgrading an oven, new production line and press, as well as fixing some existing operational issues from Headwaters' recent consolidation of two other plants with the Oceanside plant.

“Stone-coated metal roofing is a substantial addition to the portfolio,” said Darren. “Together with our newly acquired composite roof tile product, Boral Roofing has access to markets in climates that concrete and clay roof tile do not usually travel.

“Once the plant optimisation work is completed at our Oceanside plant, it will have a significantly more variable cost base than our concrete or clay tile plants,” he said.

Further plant improvements are being undertaken at the Okeechobee plant in Florida, formerly part of Headwaters' joint venture Entegra Roofing business, which will improve operating and manufacturing efficiency at the concrete tile facility.



Robot at the metal roofing plant in Oceanside, California



Stone coatings for metal roofing products



The new Eldorado Stone plant in Greencastle, Pennsylvania

Stone – Pennsylvania replacement plant

Through our combined Cultured Stone® by Boral® and Headwaters brands Eldorado Stone, StoneCraft and Dutch Quality Stone, we have a leading position in sales, marketing and product offering in the stone veneer across North America.

In March 2018 the business finished commissioning a new, 432,000 square foot, state-of-the-art stone manufacturing and distribution facility in Greencastle, Pennsylvania.

Servicing East Coast and Central regions, the new Eldorado Stone plant consolidated an aging manufacturing facility near Greencastle and a nearby distribution facility in Hagerstown, Maryland, into one central hub for the region.

“By consolidating our manufacturing and distribution under one roof, we’ll be able to streamline our operations, increase our capacity by over 30 per cent and ultimately deliver an improved customer experience,” said Brent Spann, President of the Stone Group.

The facility will incorporate a new waste repurposing system that will help control and manage wastewater and other wet materials to reduce the amount of discarded materials by as much as 50 per cent.

“In addition to the technological improvements, we’re excited about the impact this facility will have on our 300 employees’ lives,” said Plant Manager Frank Guthrie. “Everything in the plant was designed to improve the safety, lighting, ergonomics and overall employee work environment.”



Greencastle plant distribution warehouse



Eldorado Stone’s TundraBrick® range is produced at the Greencastle plant (new Ironsides and Latigo colour palettes pictured)

“We’ll be able to streamline our operations, increase our capacity by over 30 per cent and ultimately deliver an improved customer experience.”

Brent Spann, President, Stone Group

Light Building Products – North Carolina and Massachusetts upgrades

With the burgeoning trend towards lightweight building products, Boral is well placed with an expanded portfolio of these products following the Headwaters acquisition.

“We now have the ability to offer customers the full range of lightweight exterior products, with our 12 product categories generating sales from across North America and beyond,” said Brian Below, President, Light Building Products Division.

Facing unprecedented interest and strong adoption of the Boral TruExterior® Siding & Trim product range, production capacity was doubled at our Salisbury, North Carolina, plant in December 2016. We added a new production line and equipment, as well as more employees, to ensure the steady supply of our lightweight, poly-ash siding and trim across the US.

For the Kleer brand of cellular PVC trim products, a new production line was commissioned in November 2017 at the plant in Westfield, Massachusetts, enabling the business to stay ahead of growing demand.

Now operating with five production lines, the plant has increased production capacity by over 20 per cent and is able to better meet the demand for existing products as well as new products.

“We’re now evaluating further capacity investments as demand for these products continues to outpace overall market growth,” said Brian.

In addition to new capacity, we are continuing to invest in new product development, such as the Kleer trim components with integrated nailing flange, designed for enhanced application of premium vinyl siding and other panelised systems.



“We’re now evaluating further capacity investments as demand for these products continues to outpace overall market growth.”

Brian Below, President, Light Building Products



Line 5 at the Kleer trim plant in Westfield, Massachusetts



Kleer Trim Outside Corner with integrated nailing flange

On track for sustainable growth

Along with expected performance improvements across the business as operational upgrades continue, Boral North America’s Building Products businesses are on track to deliver on synergy targets for FY2018 and beyond.

“This past year has witnessed an enormous amount of change for our co-workers, customers and suppliers,” said Chris Fenwick. “While we hit a few speed bumps along the way, I am very pleased with the combined team’s efforts to capture synergies, make hard decisions, support our customers, align our culture and solve problems.”

David Mariner adds, “One of Boral’s overall ambitions is to create a balanced portfolio of traditional and innovative products, with a focus on less capital-intensive, more variable cost businesses – the Building Products businesses have an important part to play in this.

“With growing demand and the expertise of our Building Products leadership and teams, I’m confident that we can continue transforming the business to deliver great performance and continued growth,” he said. ■



ZERO HARM TODAY

Record low for lost-time injuries

For the six months ended December 2017 Boral achieved a record low in our lost-time injury frequency rate of 1.1 injuries per million hours worked, down from 1.5 in the prior corresponding period.

As of 1 July last year Boral's safety reporting combines performance for employees and contractors in all our businesses, including all joint ventures regardless of our ownership interest and, of course, Headwaters.

Our medical treatment injury frequency rate was up slightly to 7.2 per million hours worked, combining with lost time injuries for a recordable injury frequency rate of 8.3. This is broadly steady on the prior year which is a great result as it includes the relatively poorer safety performance of the Headwaters and Meridian Brick businesses, and all our joint venture interests, combined with further improvements in our pre-existing businesses.

Across the Group we remain determined to achieve our global safety goal of Zero Harm Today. ■

Group recordable injury frequency rate (RIFR¹)



Does not include Headwaters. Includes employees and contractors in 100%-owned businesses and 50%-owned joint venture operations only

1 Recordable Injury Frequency Rate (RIFR) per million hours worked is made up of Lost Time Injury Frequency Rate (LTIFR) and Medical Treatment Injury Rate (MTIFR)
 2 Includes employees and contractors in all businesses, including Headwaters and all joint venture operations regardless of equity interest

“Since acquiring Headwaters in May 2017, safety performance in those businesses has improved significantly, which is very encouraging.”

Mike Kane, CEO and Managing Director, Boral Limited

A focus on heavy vehicle transport safety

Across all Australian workplaces heavy vehicle transport is proving a high-risk area for serious injuries and fatalities. With our far-reaching transport operations and significant fleet of concrete agitators, powder tankers, tipper trucks, bitumen tankers and other heavy vehicles, it's a primary area of safety focus for Boral Australia.

Last year Boral Australia commenced a Heavy Vehicle Transport Safety Initiative to address the risks.

“It's a comprehensive nationwide safety initiative that is absolutely critical in our Zero Harm journey,” said Ross Harper, Executive General Manager, Cement and the lead of Boral Australia's Supply Chain and Logistics Council.

Working with an international transport safety expert, Boral Australia reviewed and benchmarked our heavy vehicle safety practices against global best practice.

“While there was some very positive feedback, like strong leadership commitment, our compliance focus and vehicle technology innovations, we also received improvement recommendations which we've distilled into 10 priority projects,” said Nicole Lawler, Program Manager for the initiative.

The projects include:

- improving incident investigation and response to lessons learned,
- implementing practical rollover avoidance training,
- improving contractor haulier management, and
- implementing a consistent driver behavioural safety program.

We have established teams to progress all the priority project areas and regular program updates are shared across the country. For more information, email heavyvehiclesafety@boral.com.au

“It's a comprehensive nationwide safety initiative that is absolutely critical in our Zero Harm journey.”

Ross Harper, Executive General Manager, Cement, Boral Australia



The corporate HSE team at USG Boral's plant in Saraburi, Thailand, with members of the local team



The Tapco team at the Elkland plant

Using LEAN to reduce safety risks

At Boral North America's Tapco International manufacturing plant in Elkland, Pennsylvania, a continuous improvement initiative based on LEAN principles has reduced safety risks around a daily production process.

The Elkland plant produces light building product moulds, shutters, door trims, mounting blocks and vents. The moulds that form the products are changed about 24 times a day on average, for more than 6,000 mould changes annually.

A mould change involves using an overhead crane, which can weigh over 10 tons, to hoist injection moulds in and out of the moulding press. It can take between 30 to 45 minutes with many ergonomic challenges for our team.

Following a *kaizen* process that's traditionally focused on manufacturing improvements, Tapco's plant and safety teams studied safety records, then reviewed video footage and a real-time mould change, identifying 72 potential risks in the process.

Focusing on the main risk factors, the team brainstormed to generate 142 risk mitigation ideas, ranging from attaching task lighting to personal protective equipment to a redesigned fall protection system.

With various small changes implemented, and the larger capital improvements being tested, in 90 days the team has more than halved the risk factors and is continuing to reduce risks.

“The success of our *kaizen* event pays tribute to the commitment to safety the Boral family lives each day. Collectively identifying risks then quickly and effectively acting on the risk reduction ideas has made a safer work environment for our mould changers.”

Bill McCaig, Plant Manager – Elkland, Tapco International

Making manual handling safer

Boral Australia's Work Fit team is helping reduce injuries relating to manual handling, business by business.

The team has developed a manual handling program which can be tailored to different business units, ensuring that the specific tasks of each unit are reviewed and addressed.

Boral's Work Fit Advisors – each with Allied Health qualifications and an in-depth understanding of how manual handling injuries occur – conduct individual assessments, utilising site tools, machinery and mobile plant to deliver interactive training on site.

For example in our NSW concrete placing operations, which involves dynamic manual handling in an environment controlled by the client, the Work Fit team took a proactive approach, said De Martin & Gasparini's General Manager Finance & Operations Greg Miller.

“They visited several of our sites and studied manual handling activity,” he said. “The outcome was a course specifically tailored to our business, great engagement from the workforce and a step-change in the understanding of correct manual handling techniques across the business.”

Quarry Manager at Wollert Quarry, Victoria, Lauren Trewin said, “After the training was delivered I've seen an increased awareness of manual handling and ergonomics demonstrated by employees on site. Our people appear to be more mindful of their approach to particular tasks and the design of their daily work areas.”

To date, more than 780 employees across Australia have participated in the training. To arrange Manual Handling Training in your business, contact your State Work Fit Manager.

Global HSE team in a global business

Boral's Health, Safety and Environment (HSE) leadership team, comprising corporate and senior HSE leaders from our three divisions, came together in February in Kuala Lumpur, Malaysia, to review the Group's HSE performance, our strategies and improvement plans, and emerging challenges.

Under the theme of 'A global team in a global business', the team recognised that Boral today is very different to 12 months ago, and so how we work together needs to change.

“The mandate for Zero Harm Today has never been stronger,” said Group HSE Director, Michael Wilson. “The team has a shared, deeper understanding of the challenges and improvement programs across Boral, and hence the basis for further collaboration.”

To support transformation, we are shifting to focus on our main 'customers' – those in 'the line of fire', where HSE helps them make their work safer and easier; and Managers, where HSE helps them care for and be responsible for their people.



Training at the new asphalt plant at Stonyfell, South Australia



Day begins

A DAY IN THE LIFE OF...

BORAL RECYCLING, WIDEMERE, NSW

Across four sites in NSW and the ACT, Boral Recycling receives more than one million tonnes of construction and demolition materials annually, mostly comprising concrete, asphalt and bricks from demolitions, recycling centres and concrete batch plants.

At the Widemere facility we process the materials into recycled products, offering a sustainable alternative to waste disposal. State Manager, Recycling NSW/ACT Jason Sweeney takes us through a day with Boral Recycling.

Site Manager Adrian leads the daily Toolbox Talk, covering the day's deployments, major material intakes and plant run, and reinforcing the 'Working on Foot' safety protocol. Today the site is expecting delivery of 1,000 tonnes of solid concrete waste, up to 1,000 tonnes of Boral concrete waste and washout, and 800 tonnes of bricks, with outgoing sales of about 2,500 tonnes.



5.30am

Day ends



4.00pm

Some customers are taking part in an awareness training session, which shows them what to look for in cases of contamination. The site Traffic Management Plan is reinforced to customers too. Meanwhile, the last delivery is in – until tomorrow.



2.40pm

Roadworks company Megex Civil is picking up 500 tonnes of recycled concrete aggregate which will be used for road base at Horsley Park. The product is loaded to their truck on the outbound weighbridge for dispatch.

Lab Technician Chris takes samples for quality control testing at Boral's Materials Technical Sciences laboratory in Baulkham Hills, ensuring that the products are to specification. Later he joins Adrian at the site's water storage dam to conduct a GEMBA walk, discussing water management controls ahead of the rain season and taking water samples for quality testing.



1.30pm



10.30am

At the other end of the plant, Pickers Tony and Mitch remove foreign matter from the crushed materials on the conveyor belt, which are then transferred to stockpiles. Widemere produces about seven different products which are used as road base, drainage aggregates and pipe-setting materials.



9.00am

Back at the plant, excavators with pulverisers break down materials that are too big for the jaw crusher and remove steel, which is separately sold to steel merchants. A loading shovel feeds the material to the crushing and screening plant via belts which pass through magnets to remove more steel.



The day's first incoming load arrives. All incoming drivers are briefed on the site's Traffic Management Plan and routes on arrival as well as prior to the delivery day.



At the weighbridge, Operator Ben inspects the truck's load for 'contaminants' like soil, rubbish or hazardous materials, before classifying it by material type and size. This load is concrete with steel at 700mm-plus sizing. Ben creates a docket and sends the truck to the receive and loading area.



Spotter Gordon – who's 73 years old and retiring this year after eight years with Boral Recycling – confirms the material at the loading area, then directs the truck to the solid concrete waste unloading area. The truck unloads at the tipping area where it's inspected again.

On average truck loads are rejected a couple of times a day for having contaminants. In these instances they're re-loaded and sent to facilities that can handle the material.



This load gets the tick and is pushed to the concrete stockpile which feeds into the plant. The feed stockpile material is sampled and tested regularly by Boral's lab technicians who check for hazardous materials.



At a Boral concrete batch plant, excess concrete returned from deliveries which has been allowed to set is 'pushed up' and broken into pieces. It's loaded onto a truck headed for Widemere. Batch plants also send concrete washout from drying pits, while Boral Asphalt sends waste material and asphalt profilings for recycling too.



Account Manager Jessica is at a house demolition in Lidcombe, inspecting potential concrete intake. She checks for contamination and material types, before confirming with contractor Site Demolition that it's acceptable for Widemere.

Waste avoidance and resource recovery

By processing and reusing what would otherwise be waste materials going to landfill, Boral is contributing to industry waste avoidance and resource recovery. The NSW Environment Protection Agency (EPA) is targeting an industry recycling rate of 80% for construction and demolition waste by 2021-22.

Combining our recycling facilities in NSW and the ACT, Boral is one of the largest construction and demolition materials recyclers in Australia. Boral Recycling achieves 99% resource recovery from accepted materials, which are then supplied to build projects like the WestConnex motorway in Sydney.

Boral Recycling also allows our concrete and asphalt operations to 'internalise' some waste streams. Over the last year approximately 200,000 tonnes of Boral's returned concrete and washout have been recycled and sold back into the construction market.



PROTECTING CULTURAL HERITAGE IN AUSTRALIA

Boral Australia has a significant national presence, with more than 420 operating and distribution sites across all states and territories. We recognise and respect sites, places, structures and objects that have cultural or traditional significance.

Boral Property Group and employees at our sites work closely with Indigenous peoples to protect Australia's cultural heritage, with some sites subject to Cultural Heritage Management Plans.

"We strive for Zero Harm to our people, community and environment," said Boral Australia's National Indigenous Affairs Manager Vince Scarcella. "Ensuring the proper care and respect for places and items of cultural significance to local Indigenous groups is an important part of this as well as Boral's social licence to operate."

Here's some of the work we're doing around the country.



Gidgegannup, WA

Boral has hard rock and clay extraction sites in Gidgegannup near Perth that are subject to Indigenous Heritage Agreements.

Sites of significant cultural heritage include Susannah Brook, which runs through our property and is recorded in Indigenous folklore as being the home of the mythical creature Waugal – creator of all sources of freshwater. There are several recorded sites along Susannah Brook, including rock art, significant structures and marked trees.

Some of our Gidgegannup properties also contain artefact scatterings and rock carvings, which local Indigenous people hold sacred. These areas of the site are maintained by the local Indigenous group and there's a buffer zone established around the sites to preserve their integrity.



~100,000
artefacts found at
Peppertree Quarry



Top: Aboriginal artefacts found at Peppertree Quarry
Bottom: An excavation site at Peppertree Quarry



Rock carving on a granite outcrop on the Darling Plateau in Perth



420+
Boral Australia sites

including



70+
quarries



**~260
years**
age of a sample
at Ormeau Quarry



Top: Ormeau Quarry
Bottom: Excavation pit at Ormeau Quarry

Ormeau Quarry, QLD

Boral has liaised with Aboriginal groups and undertaken Aboriginal cultural heritage surveys on 13 quarry sites in Queensland. Eight are deemed to have potential cultural heritage significance.

At our Ormeau Quarry, Boral initiated an Aboriginal cultural heritage walk over in 2013 as part of the proposed pit expansion pre-works. This was followed by an Aboriginal cultural heritage survey by trained experts and representatives of the relevant Aboriginal party, Jabree Limited.

A total of 115 Aboriginal artefacts were identified, including flaked stone and a core fragment, as well as charcoal samples (evidence of habitation). Some material samples were carbon dated by the University of Waikato Radiocarbon Dating Laboratory, providing a date of about 260 years for one of the samples.

Peppertree Quarry, NSW

An initial Aboriginal heritage study was conducted in 2006 at the site that's now Peppertree Quarry, with a number of significant areas identified.

With the assistance of an Aboriginal Heritage Management Committee (AHMC) – comprising representatives from the Ngunawal Heritage Aboriginal Corporation, Buru Ngunawal Aboriginal Corporation and Pejar Local Aboriginal Land Council – initial excavations salvaged an estimated 22,000 artefacts from a number of sites.

An Aboriginal Heritage Management Plan was developed for the quarry in 2011 and continues to provide the framework for the identification, protection, conservation and presentation of Aboriginal cultural values at the site.

The AHMC have undertaken sub-surface salvage and topsoil monitoring across a large area of the site. Nearly 100,000 Aboriginal artefacts from various locations have now been salvaged, identified and catalogued. A small proportion of the artefacts will be displayed for future community and tourist viewing, with the remainder 'returned to country' under the guidance of the AHMC.

Dunmore Quarry, NSW

An Aboriginal scarred tree was found at our Dunmore Quarry in 1992.

Scarred trees are the result of the Aboriginal removal of bark from a living tree for use in structures and implements, such as shelters, canoes and sculptures, and they hold local Aboriginal significance.

Following extensive consultation with five local Aboriginal groups – including the Northern Illawarra Aboriginal Collective, Korewal Elouera Jerrungarugh Tribal Elders Aboriginal Corporation and Wodi Wodi Elders Corporation – and various archaeological investigations, the 150-year-old tree was initially removed and relocated in 2008 to an area within the quarry protected from operations.

In 2013 it was relocated to nearby Killalea State Park where it was presented to the public in an official 'Close the Gap' ceremony in 2015.



Top right: The scarred tree at Killalea State Park
Bottom: Dunmore Quarry



In the community

NOV



SUPPORTING YOUNG INTERIOR DESIGNERS

In Victoria USG Boral was pleased to support RMIT University Melbourne's interior design graduate exhibition. INDEX 2017 featured major design projects of graduating students from the Bachelor of Interior Design (Honours) program, while USG Boral showcased our Virtual Reality product display to students and industry attendees. Photo credit: Greta Costello Photography.

NOV



PEPPERTREE WOMBATS AT SANCTUARY

Our team at Peppertree Quarry in the NSW Southern Tablelands rescued and relocated five wombats, with the assistance of Sleepy Burrows Wombat Sanctuary. The marsupials' burrow, housing four babies, was found in the quarry's overburden area. Boral is committed to protecting and, where we can, enhancing biodiversity at all our sites.

FEB



TRY A SHIPPING CONTAINER ON FOR SIZE

Our new concrete plant in West Melbourne, Victoria, will feature a repurposed shipping container office and amenities building, built and installed by the TRY Australia charity, training organisation and social enterprise. One of Boral's newest suppliers, their TRY Build division converts shipping containers into offices, lunch rooms and amenities facilities.

MAR



FORMER APPRENTICE A WINTER PARALYMPIAN

Sam Tait started as an Electrical Apprentice at our Berrima cement works in 2014 but suffered a spinal cord injury in a motorbike accident, becoming a paraplegic. In the same year he learned to sit-ski. His Berrima colleagues were extremely proud to see Sam compete for Australia in five alpine skiing events at the PyeongChang 2018 Winter Paralympics. Photo credit: Australian Paralympic Committee.

NOV



HOUSING HOMELESS YOUTH WITH HOMEAID

Boral North America donated building products to HomeAid Atlanta to help repair and upgrade Covenant House Georgia, a facility for homeless youth. We are also currently working together on other shelter projects in Georgia and Colorado. Boral has partnered with HomeAid America since 2007.

JAN



EPIC HOMES BUILD IN MALAYSIA

Some of our business partners joined USG Boral Malaysia employees to volunteer with non-profit organisation EPIC Homes to build a home for indigenous people in a rural community. Over three days the team of more than 30 employees completed the dwelling using USG Boral's Durock® Cement Board, Standardcore Board and other materials.

JAN



FIRST INCLUSIVE PLAYSPACE IN SA

Works have commenced at Touched by Olivia's first inclusive playspace in South Australia. Boral is contributing quarry materials, concrete, timber and a cash donation to the all-abilities playspace at Hendrie Reserve, Marion, which is due to be completed later in the year. Boral has supported Touched by Olivia since 2012.

FEB



BANDITS CROWNED THREE-TIME ABL CHAMPS

More than 150 Boral employees and family members enjoyed the Australian Baseball League (ABL) 2017/18 season, with games in Sydney, Melbourne, Brisbane, Perth, Adelaide and Canberra. The Brisbane Bandits took out the ABL Championship Series presented by Boral for the third year running in an exciting three-game playoff.

MAR



HELPING HABITAT'S HOMES FOR HOPE

In Sydney's west, a team from Boral Property Group volunteered for Habitat for Humanity NSW's International Women's Day program. The team helped paint rooms for emergency accommodation run by Parramatta Mission, which provides shelter, meals and mental health services for women and children escaping domestic violence.

MAY



YOUNG LEADERS ARE OUTWARD BOUND!

Boral is proud to sponsor Outward Bound Australia's Youth Leadership Program in the Southern Highlands and Tablelands region. This year's program will see local high school students near our Peppertree and Marulan quarries take part in a personal development camp, experiencing leadership and team-building opportunities in the great outdoors.

JUN



SIGN UP FOR TREE PLANTING CHALLENGE

Boral has supported Conservation Volunteers Australia since 1988 – we are proud to be their longest-standing corporate partner. Their World Environment Day Tree Planting Challenge will be held on 1, 5 and 8 June 2018 at sites all across Australia. Grab a team of 10 and sign up to participate by contacting corporate@cva.org.au

JUN-SEP



NEW BANGARRA TOUR: DARK EMU

Leading performing arts company Bangarra will hit the road with their new national tour production *Dark Emu*. Inspired by Bruce Pascoe's award-winning book of the same name, the dance stories will explore the vital life force of flora and fauna. Boral is proud to be Bangarra's Regional Touring Partner in 2018. Boral staff receive a discount to national tour performances – contact Corporate Affairs for details.



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