

# BORAL REVIEW

INCORPORATING BORAL'S 2017 SUSTAINABILITY REPORT



2017

An annual publication for Boral's shareholders,  
employees and other stakeholders

- Transforming for performance excellence and sustainable growth
- Responding to a changing world – our risks and responses
- Delivering value creation and long-term sustainability

## BUILDING A TRANSFORMATIVE CULTURE

To grow, innovate and be responsive



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Boral Limited's statutory results are reported under International Financial Reporting Standards (IFRS). Earnings before significant items is a non-IFRS measure reported to provide a greater understanding of the underlying business performance of the Group. Significant items are detailed in note 2.6 of the financial statements and relate to amounts of income and expense that are associated with significant business restructuring, business disposals, impairment or individual transactions.

The Boral Review has not been subject to review or audit; however, it contains disclosures which are extracted or derived from the financial statements for the year ended 30 June 2017.

All dollar amounts referred to are in Australian dollars unless otherwise specified.

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**BORAL LIMITED**  
ABN 13 008 421 761

Pictured: Boral's new fixed concrete plant at Granville, NSW  
Front cover image: Matthew Meneses, Research Technician from Boral's Discovery Center in San Antonio, Texas, USA – part of the Boral Innovation Factory



# BUILDING A TRANSFORMATIVE CULTURE

Our purpose is to *Build something great* across our international geographies with high-quality, innovative, sustainable building products and construction materials.

Boral is an international building and construction materials group with three strong divisions: the high-performing, well-positioned materials business of Boral Australia; the fast-growing USG Boral<sup>1</sup> interior linings business in Asia, Australia and the Middle East; and Boral North America, a scaled and growing building products and fly ash business.

FY2017 marked the fifth year of a transformational journey for Boral, which culminated in the US\$2.6 billion acquisition of Headwaters Incorporated in the USA.

In FY2017, Boral delivered underlying profit after tax<sup>2</sup> of \$343 million, a significant 28% increase on the prior year.

We are committed to delivering performance excellence, including Zero Harm, and we are striving for sustainable growth.

We are positioning Boral to continue to transform, by *Building a transformative culture* to capture growth opportunities, innovate, anticipate and respond to a changing world.

## Year at a glance

### 24 AUGUST 2016

Boral reported underlying profit after tax<sup>2</sup> of \$268 million for the 12 months to 30 June 2016, an 8% increase on the prior year.

Boral agreed to form a 50:50 joint venture with Forterra Brick to combine brick businesses in North America.

### 22 SEPTEMBER 2016

North American bricks joint venture received merger clearance from the US Federal Trade Commission; Boral Bricks President Paul Samples appointed CEO of the joint venture, now known as Meridian Brick. The joint venture commenced on 1 November 2016.

### 31 OCTOBER 2016

Boral sold its 40% share of Boral CSR Bricks joint venture to CSR Limited for total cash consideration of \$133.9 million, exiting east coast brick manufacturing in Australia.

### 3 NOVEMBER 2016

At the Annual General Meeting, Karen Moses was elected as a Director of the Board and Eileen Doyle was re-elected as a Director. The resolution to adopt the Remuneration Report, while supported by the majority of shareholders, had 26.1% of votes cast against it, constituting a "first strike".

### 21 NOVEMBER 2016

Boral announced the US\$2.6 billion acquisition of US building products manufacturer and fly ash marketer Headwaters, and a ~A\$2 billion equity capital raising to support the acquisition.

### 14 DECEMBER 2016

Boral completed the retail entitlement offer and shortfall bookbuild, following the successful completion of the institutional placement and entitlement offer in November, raising ~A\$2 billion.

### 6 FEBRUARY 2017

Shareholders of Headwaters approved the acquisition, with more than 98% of the votes cast in favour of the deal.

### 15 FEBRUARY 2017

Boral reported underlying net profit after tax<sup>2</sup> of \$149 million for the six months to 31 December 2016, up 9% on the prior year.

### 9 MAY 2017

Boral completed the acquisition of Headwaters, effective 8 May 2017, following receipt of all required regulatory and shareholder approvals. Boral North America was formed as a new division, combining operations of Boral USA and Headwaters, headed by President and CEO David Mariner.

1. 50%-owned joint venture with USG Corporation.

2. Excluding significant items.



# RESULTS

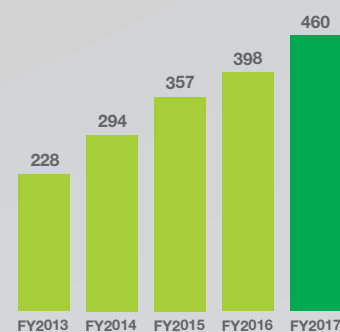
## AT A GLANCE

Year ended 30 June (A\$ million unless stated)	FY2017	FY2016
Revenue	4,388	4,311
EBITDA <sup>1</sup>	720	645
EBITA <sup>1,2</sup>	472	400
EBIT <sup>1</sup>	460	398
Net interest <sup>1</sup>	(51)	(63)
Profit before tax <sup>1</sup>	409	335
Tax <sup>1</sup>	(67)	(67)
<b>Profit after tax<sup>1</sup></b>	<b>343</b>	268
Net significant items	(46)	(12)
<b>Net profit / (loss) after tax</b>	<b>297</b>	256
Profit after tax and before amortisation <sup>1,2</sup>	350	269
Cash flow from operating activities	413	478
Gross assets	9,314	5,801
Funds employed	7,774	4,399
Liabilities	3,873	2,294
Net debt / (cash)	2,333	893
Stay-in-business capital expenditure	288	281
Growth capital expenditure	52	43
Acquisition capital expenditure	3,637	-
Depreciation and amortisation	260	247
Boral employees <sup>3</sup>	11,499	8,334
Total employees including in joint ventures	16,475	12,058
Revenue per Boral employee, \$ million	0.382	0.517
Net tangible asset backing, \$ per share	1.90	4.40
EBITDA margin on revenue <sup>1</sup> , %	16.4	14.9
EBIT margin on revenue <sup>1</sup> , %	10.5	9.2
EBIT return on funds employed <sup>1,4</sup> , %	9.2	9.0
EBIT return on average funds employed <sup>1,5</sup> , %	7.6	9.1
Return on equity <sup>1</sup> , %	6.3	7.6
Gearing		
Net debt/equity, %	43	25
Net debt/net debt + equity, %	30	20
Interest cover <sup>1</sup> , times	9.1	6.3
Earnings per share <sup>1,6</sup> , ¢	33.7	33.3
Dividend per share, ¢	24.0	22.5
Employee safety <sup>7</sup> : (per million hours worked)		
Lost time injury frequency rate	1.5	1.3
Recordable injury frequency rate	8.1	8.8

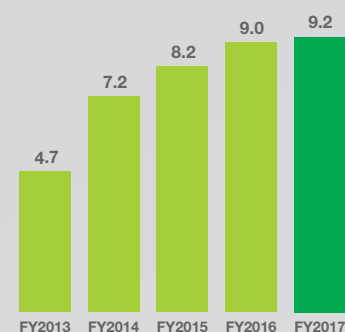
Figures may not add due to rounding.

- Excludes significant items.
- Excludes amortisation of acquired intangibles.
- On a full-time equivalent (FTE) basis. FY2017 includes 4,016 FTE employees from Headwaters.
- FY2016 return on funds employed (ROFE) calculated as EBIT (before significant items) on funds employed at 30 June. FY2017 ROFE based on average monthly funds employed due to the impact of Headwaters only contributing eight weeks of EBIT in FY2017 but funds employed increasing fully at 30 June 2017. Based on year end funds employed, ROFE for FY2017 would be reported as 5.9%.
- Calculated as EBIT (before significant items) on the average of opening and closing funds employed for the year.
- In accordance with AASB 133, historical EPS has been revised to reflect the bonus element in the equity raising completed in December 2016.
- Includes employees and contractors in 100%-owned businesses and 50%-owned joint venture operations. Does not include Headwaters. RIFR is made up of lost time injury frequency rate (LTIFR) and medical treatment injury frequency rate (MTIFR).
- Includes Boral's 50% share of revenue from the USG Boral and Meridian Brick joint ventures, which is not included in Group reported revenue.
- Includes a full year of Headwaters proforma revenue contribution.
- Includes joint venture sites.
- For Boral's 100%-owned operations and Boral's share from 50%-owned joint venture operations. Revenue adjusted to include 50% of underlying revenues from USG Boral and Meridian Brick joint ventures, which are not included in Group reported revenue.

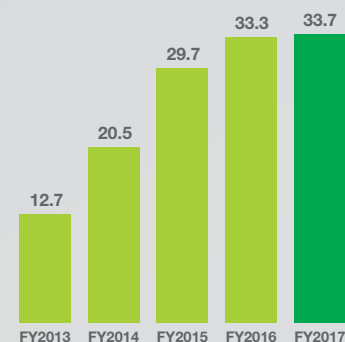
### Earnings before interest and tax<sup>1</sup> (A\$m)



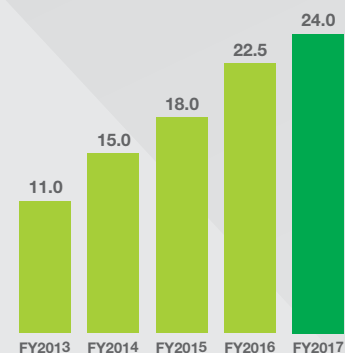
### Return on funds employed<sup>1,4</sup> (%)



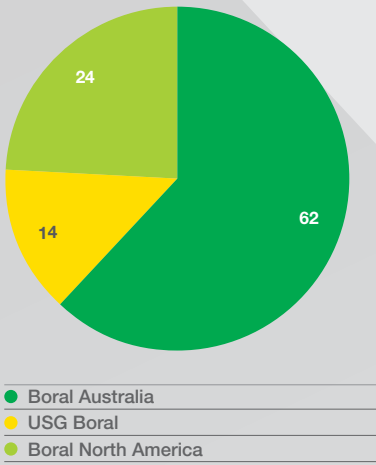
### Earnings per share<sup>1,6</sup> (¢)



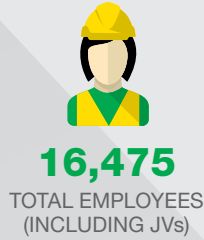
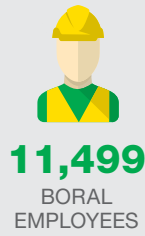
### Dividends per share (¢)



### FY2017 revenue by division<sup>8</sup> (%)



### Our people<sup>3</sup>



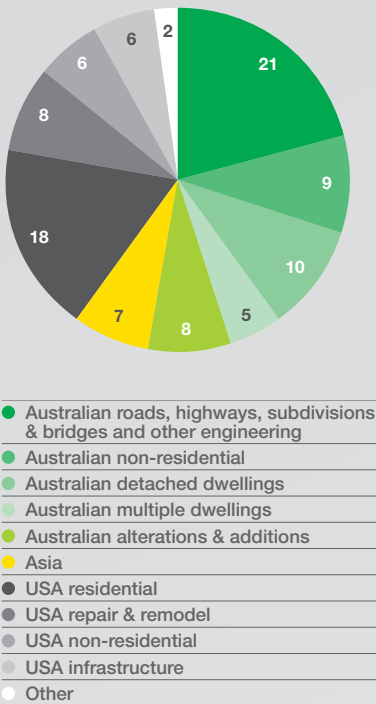
### Women in management



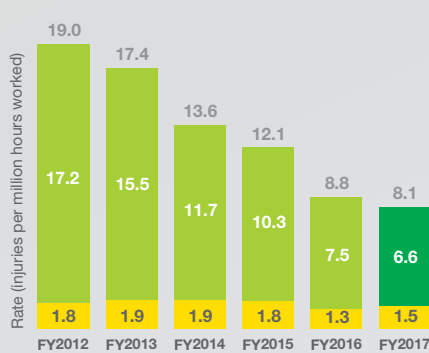
### Sites<sup>10</sup>



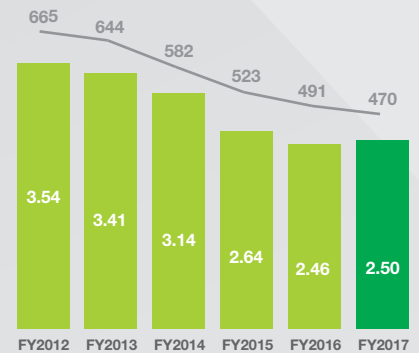
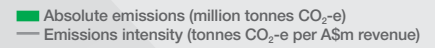
### Proforma revenue by market<sup>8,9</sup> (%)



### Recordable injury frequency rate (RIFR)<sup>7</sup>

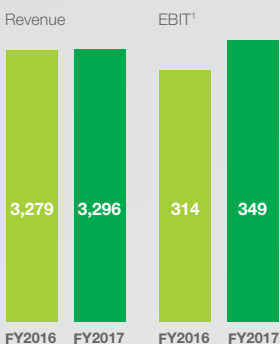


### Greenhouse gas emissions<sup>11</sup>

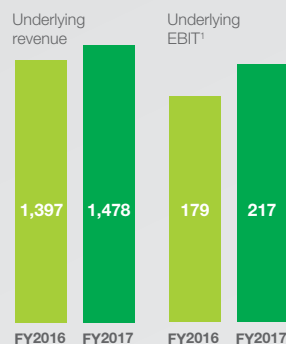


### THREE FOCUSED OPERATING DIVISIONS

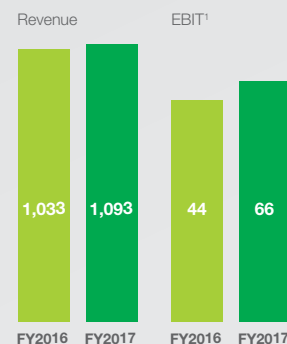
#### Boral Australia (A\$m)



#### USG Boral (A\$m)

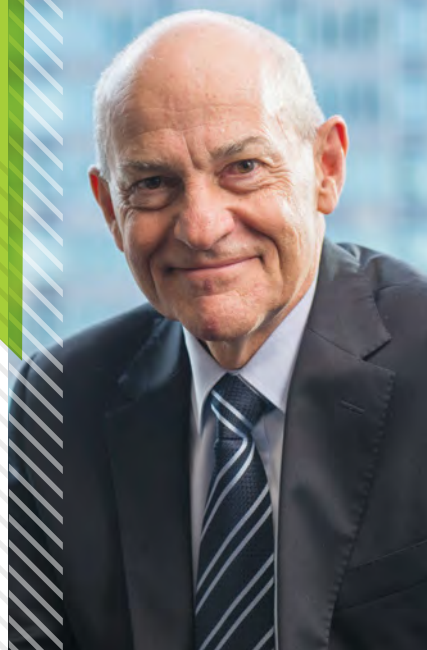


#### Boral North America (A\$m)



# OVERVIEW FROM THE CHAIRMAN

Dr Brian Clark



**“For several years now, we have been working to deliver performance excellence, as well as more sustainable growth, through strategic acquisitions and innovation. In FY2017 we delivered on both fronts.”**

DR BRIAN CLARK, CHAIRMAN

## A year of transformation for Boral

As you may recall, a year ago I said that we were assessing strategic merger and acquisition (M&A) opportunities, particularly in the USA, where Boral has four decades of experience.

After months of rigorous due diligence, the Board determined that Headwaters Inc. presented a compelling acquisition opportunity for Boral, offering substantial long-term value creation for shareholders. It presented an undeniably strong fit with Boral's existing business and was well-aligned with our strategic goals.

On 21 November 2016, we announced the transaction and a A\$2 billion capital raising.

Your support for this transformative strategic move was overwhelming and for that, your Board thanks you.

Completed on 8 May 2017, the acquisition more than doubles our position in the USA, increasing Boral's product offerings, geographic breadth, multi-channel distribution and diversification across broader and growing US construction markets.

We expect in excess of US\$100 million per annum of synergies within four years, including US\$30–35 million in the first full year.

We are pleased with how the initial period of integration has progressed and, in line with guidance, Headwaters contributed US\$21 million to Boral's earnings before interest and tax (EBIT<sup>1</sup>) in FY2017, representing the first eight weeks of consolidation.

## A year of strong performance

For the year ended 30 June 2017, sales revenue of \$4.4 billion was up 2% on the prior year, reflecting additional revenue from Headwaters as well as growth in Australia and in the underlying US business. Excluding US Bricks revenue in both years, which is now equity accounted following the formation of the Meridian Brick joint venture, revenue was up 8%.

Group EBIT<sup>1</sup> increased 16% to \$460 million, and underlying profit after tax<sup>1</sup> increased by a substantial 28% to \$343 million. The result benefited from eight weeks of earnings from Headwaters as well as underlying growth in all three divisions.

The reported profit result was also helped by a lower net interest expense due to the positive cash balance for part of the year following the equity raising, and a steady income tax expense because of previously unrecognised tax losses and a benefit arising from the vesting of long-term incentives.

Significant items of A\$46 million, primarily related to transaction costs for the Headwaters acquisition, resulted in net profit after tax and significant items of \$297 million, up 16% on the prior year.

Boral Australia delivered an EBIT return on funds employed (ROFE<sup>2</sup>) of 14.6% for the year and USG Boral delivered underlying ROFE<sup>2</sup> of 11.6% – strong divisional returns that exceed the cost of capital.

Returns from Boral North America are expected to exceed the cost of capital in coming years, and the Headwaters acquisition strengthens Boral's ability to deliver returns above the cost of capital through the cycle.

ROFE<sup>2</sup> was 9.2% using the average monthly funds employed for the year, compared with reported ROFE<sup>2</sup> of 9.0% in FY2016.

Net debt at 30 June 2017 of \$2.3 billion was up from \$893 million last year due to the acquisition of Headwaters. However, Boral remains well within its funding covenants and our balance sheet remains robust.

The Board declared a final dividend of 12.0 cents per share, which was 50% franked, for a full year dividend of 24.0 cents per share. This represents a payout ratio for the full year of 82%. While this exceeds Boral's Dividend Policy of between 50% and 70% of earnings before significant items, subject to the Company's financial position, it is in line with Boral's commitment to maintain the level of dividends while the Headwaters acquisition was being finalised.

Boral delivered a total shareholder return<sup>3</sup> of 23.4% for the year – ahead of the average of 16.9% for ASX 100 companies.

1. Before significant items.

2. ROFE is EBIT (excluding significant items) on funds employed as at 30 June. However, Boral's Group FY2017 ROFE is based on the average monthly funds employed to recognise the impact of the Headwaters acquisition. USG Boral's underlying ROFE is on an EBIT basis whereas Boral's Group reported ROFE includes post-tax earnings from USG Boral.

3. Total shareholder return based on share price appreciation, dividends and franking benefits.

## A strong safety culture

The transformation of Boral to deliver performance excellence includes targeting world class health and safety outcomes based on Zero Harm.

In FY2017, Boral's safety performance as measured by a recordable injury frequency rate (RIFR<sup>4</sup>) of 8.1 improved by 8%, and compares with a rate of 19.0 in FY2012. Boral's lost time injury frequency rate (LTIFR<sup>4</sup>) at 1.5 is down from 1.8 in FY2012 but up slightly from 1.3 in FY2016 – a reminder that there is still work to do.

## The Board

Boral's Board benefits from diversity of gender, tenure and experience across a range of sectors, functions and professions.

While the Board was stable during FY2017, we have been developing succession plans and identifying opportunities to strengthen certain Board skills and experience over time.

During the year, the Board spent time with Boral's people and visited several operations, providing the opportunity to see first-hand how we are managing safety, quality, operations and employee engagement. We are encouraged by what we have seen.

In March 2017, the Board visited USG Boral in India and Thailand. The visit to the Research & Development Centre in Saraburi reinforced for us the strength of our innovation efforts and the technical talent we have in our organisation.

In September this year, all members of the Board will spend several days in various parts of the North American business, meeting our people and inspecting our operations. This will provide another opportunity to assess the integration program and early progress against delivery of synergies.

At our 2016 Annual General Meeting, the Board received a clear message from shareholders, with 26% voting against our Remuneration Report, constituting a "first strike" for the purposes of the Corporations Act 2001.

The basis for the "first strike" was primarily the one-off targeted retention incentives for eight key executives, to ensure stable leadership. While all eight executives remain highly engaged in Boral's transformation agenda, the Board understands shareholders' views and we are committed to no further retention awards.

We have taken on board feedback received from shareholders and as a result, I expect that our 2017 Remuneration Report will be more widely supported. Details of the issues raised and changes made are communicated in this year's Remuneration Report on pages 51 to 71 of the 2017 Annual Report.

A key change made during the year was the restructuring of CEO & Managing Director Mike Kane's remuneration arrangements. The new arrangements reflect the fact that he is now spending approximately half his time in the USA, demonstrating the importance of Headwaters integration and synergy delivery to Boral's future growth.

Boral is Australian-listed and headquartered in Sydney and as such, we continue to remunerate the CEO having regard to Australian practice. The increased time Mike is spending in North America provides an opportunity to pay him out of the USA. This has allowed us to cease paying expatriate benefits and associated fringe benefits tax, which has impacted the level and positioning of the CEO's fixed pay.

## Boral's people

The Board has every confidence in Mike's leadership and we commend him for the excellent job he has done over the past five years as Boral's CEO. Following discussions with Mike, the Board currently expects he will continue in the role for another 3 to 5 years.

In the meantime, Boral's CEO succession development program continues and executives have taken on more responsibilities and increased role complexity.

At the start of FY2017, Joe Goss took on the new position of Divisional Chief Executive, Boral Australia, as a result of the Boral Building Products and Construction Materials & Cement divisions coming together.

Also effective 1 July 2016 was the promotion of David Mariner from Executive General Manager, Building Products in Australia to President & CEO, Boral North America.

Ros Ng, Boral's Chief Financial Officer, took on a larger and more complex role, including responsibility for the Corporate Development and M&A function and project management of the Headwaters transaction.

Together with Frederic de Rougemont, who has demonstrated excellent leadership as CEO of USG Boral, these key executives, and the other members of the Executive Committee, and all of Boral's people, are to be congratulated for their efforts and commitment to delivering Boral's goals and strategic priorities.

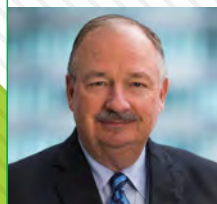
I thank Mike Kane and all of Boral's people for delivering strong results in FY2017, with safety at the forefront.

## Dr Brian Clark Chairman

### BOARD OF DIRECTORS



DR BRIAN CLARK



MIKE KANE



CATHERINE BRENNER



DR EILEEN DOYLE



KATHRYN FAGG



JOHN MARLAY



KAREN MOSES



PAUL RAYNER

4. Per million hours worked. Includes employees and contractors in 100%-owned businesses and 50%-owned joint venture businesses.



# MESSAGE FROM MIKE KANE

CEO & Managing Director

***“Building a transformative culture is the enabler we need to continue this journey to Build something great for Boral’s shareholders, customers, employees and the communities in which we operate.”***

MIKE KANE, CEO & MANAGING DIRECTOR

## **A year of significant progress**

The US\$2.6 billion Headwaters acquisition, completed in May 2017, is a major milestone in Boral’s transformation. It strengthens Boral as a global building products and construction materials group with three very strong divisions.

We have our high-performing, well-positioned Boral Australia capitalising on a growing pipeline of infrastructure work and strength in other construction markets. We have our fast-growing USG Boral business in Asia, Australasia and the Middle East, which is leading the way in product innovation in attractive, high growth markets. And now we have Boral North America – a scaled building products and fly ash business with greater geographic reach, more diverse product offerings and strong growth prospects.

Our strategy to position Boral for improved performance and growth is delivering benefits, as reflected in the 28% increase in

underlying profit after tax<sup>1</sup> to \$343 million for the year and the 16% increase in earnings before interest and tax (EBIT<sup>2</sup>) to \$460 million. The lift in EBIT comprises 7% from eight weeks of earnings from Headwaters, and 9% from growth in the underlying businesses.

Boral Australia’s EBIT<sup>1</sup> of \$349 million was up 11% on last year, with strong east coast volumes, pricing gains and margin improvements supported by growth in infrastructure activity.

USG Boral delivered an impressive 18% increase in post-tax equity income to \$70 million and a 21% lift in underlying EBIT<sup>1</sup> to \$217 million, reflecting its strength in manufacturing, distribution and technology across its markets. This outstanding business is delivering on its growth and performance promises.

Boral North America delivered an EBIT<sup>1</sup> of A\$66 million (or US\$50 million), which was 50% higher than the prior year. This included

an EBIT contribution of US\$21 million from Headwaters, which was consolidated from 8 May 2017, with benefits also from price and volume gains in the underlying business.

Boral delivered a credible safety result for the year, with a further 8% reduction in recordable injury frequency rate to 8.1 and a lost time injury frequency rate of 1.5<sup>2</sup>.

## **A strong FY2018 outlook**

Boral’s outlook for FY2018 is encouraging:

- Boral Australia is expected to deliver further EBIT growth (excluding Property earnings in both years), underpinned by the uplift in roads and infrastructure activity and continued margin improvements. The contribution from Property in FY2018 is expected to be at the lower end of the \$8m-\$46m EBIT range of the past five years.
- USG Boral is expected to deliver continued earnings growth supported by the strength of Sheetrock® delivering price, volume and cost benefits. While Indonesia and Thailand should improve, residential activity in Australia and Korea should soften. Overall, profit should grow in FY2018 at a high single-digit rate.
- Boral North America is expected to deliver significant EBIT growth with a full year from Headwaters and year one synergies of ~US\$30–35 million, in addition to underlying market growth.

1. Before significant items.

2. Per million hours worked. Includes employees and contractors in 100%-owned businesses and 50%-owned joint venture businesses.



## Building a transformative culture

In 2010, we introduced Boral's tagline – *Build something great* – and we are continuing to do that.

Over the past five years, through our Fix, Execute, Transform program, we have been fixing the things that have been holding us back, refining our operational execution skills and transforming the way Boral does business, including our product portfolio.

Our values of Excellence, Integrity, Collaboration and Endurance have underpinned our approach, and they are best captured in our commitment to keep our people safe at work, reflected in our Zero Harm Today mission which is shared by all employees, collectively.

In 2017, we are taking the next step in our strategy, with an even greater emphasis on our customers, a commitment to innovation, and an enhanced ability to capture growth and drive change.

We have a new strategic framework to support the organisation in its direction and decision-making – we are *Building a transformative culture*. The culture we are building can be defined by the words: agility, grit, transparency and courage.

Agility means we will be nimble and responsive to a changing world. Grit is having the mental toughness and persistence to deliver excellence without giving up. Transparency means being truthful, inclusive and straightforward in our approach. And fostering courage among our people will drive us forward in the face of challenges and help us to embrace risk in order to achieve great things.

A transformative culture is one that looks beyond the horizon, identifies threats and opportunities, and shapes itself to respond to traditional, commercial, technological, environmental and other societal forces. These forces can be a positive catalyst helping us deliver on our uncompromising commitments to our shareholders, the communities in which we operate, our customers who we serve, our fellow employees and the environment, which we have an obligation to protect.

## Reducing our footprint while growing our business

As part of Boral's transformation, while we have fundamentally altered our portfolio to better compete across mature and maturing markets, we are taking the lead on a less energy- and less resource-intensive path, taking advantage of opportunities to be more sustainable.

We have identified attractive positions for sustained value creation in our traditional Australian materials business. We are able to formulate solutions for our customers using the latest in materials science to deliver lighter-weight, higher-strength materials with lower environmental impacts and greater productivity options around speed, space and total cost.

Across Asia, Australasia and the Middle East, we are delivering game-changing performance characteristics in plasterboard-based products: lighter weight, greater strength and superior sag resistance. At the same time, we are on track to dramatically reduce water, energy and raw material usage through globally patented proprietary technologies.

In North America, we are the unquestioned leader in fly ash technologies, enhancing the use of coal combustion by-products in construction. We have developed patented technologies, using more than 70% recycled by-products in our high-performing TruExterior™ Trim and Siding. We have reconfigured our portfolio around

a platform of variable cost, scalable processes with reduced carbon footprints that can better compete at all points in the cycle. We have driven efficiencies so that our more mature product manufacturing facilities are consuming less energy and materials at the lowest possible costs.

In all aspects of our business, we are proudly working to *Build something great*, and *Building a transformative culture* is the enabler we need to continue to do this for Boral's shareholders, customers, employees and the communities in which we operate.

## Mike Kane CEO & Managing Director

### EXECUTIVE COMMITTEE



**JOE GOSS**  
Divisional Chief Executive,  
Boral Australia



**FREDERIC DE ROUGEMONT**  
CEO, USG Boral



**DAVID MARINER**  
President & CEO,  
Boral North America



**ROSALINE NG**  
Chief Financial Officer



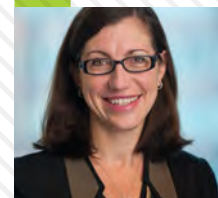
**ROSS HARPER**  
Executive General  
Manager, Cement  
(reporting to Divisional  
Chief Executive, Boral  
Australia)



**LINDA COATES**  
Group Human Resources  
Director



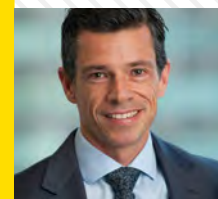
**DAMIEN SULLIVAN**  
Group General Counsel



**KYLIE FITZGERALD**  
Group Communications and  
Investor Relations Director



**DOMINIC MILLGATE**  
Company Secretary



**MICHAEL WILSON**  
Group Health, Safety and  
Environment Director



**TIM RYAN**  
Group Strategy and M&A  
Director (reporting to Chief  
Financial Officer)



**JOEL CHARLTON**  
Executive General  
Manager, Innovation and  
Group President, Windows  
(reporting to CEO &  
Managing Director and  
President & CEO, Boral  
North America)

# OUR PURPOSE

## Build something great™

across our international markets with high-quality, sustainable building products and construction materials

### WHAT WE'RE DOING



Building a **transformative culture** to capture growth opportunities, innovate, anticipate and respond to a changing world

#### CULTURAL ELEMENTS

**Agility**  
Responding to a changing world

**Grit**  
Persistence to deliver excellence



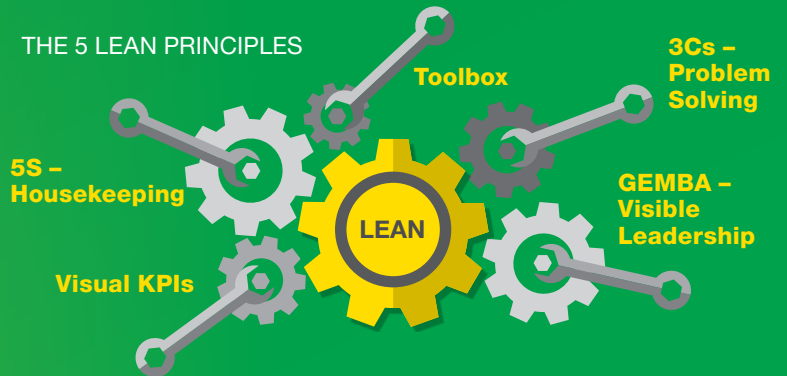
**Transparency**  
Truthful, inclusive and straightforward

**Courage**  
Embracing change to achieve great things



Applying **best practice** by leveraging LEAN principles in the way we operate and conduct business

#### THE 5 LEAN PRINCIPLES



Investing in **innovation** to create a balanced portfolio of traditional and innovative products, with a flexible cost structure, responsive to a changing world



#### INNOVATIVE MATERIALS, PRODUCTS & PROCESSES



- ✓ composite materials
- ✓ ease of installation



- ✓ shared manufacturing platforms



- ✓ recycled materials
- ✓ alternative materials and fuels



- ✓ lightweight products
- ✓ new applications

### CREATING VALUE FOR

### DRIVING STRATEGY



*Customers*  
High-performing, innovative, sustainable products

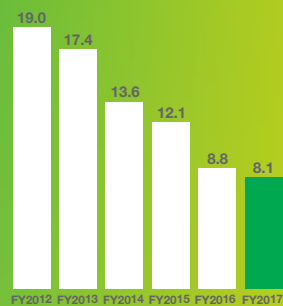


*Boral's people*  
A safe, challenging and rewarding workplace

## WHAT WE'RE DELIVERING

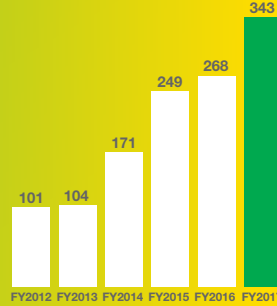
### Improved Health and safety

Recordable injury frequency rate<sup>1</sup>



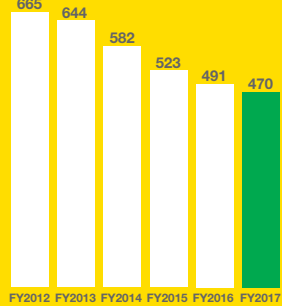
### Stronger Financial results

Profit after tax<sup>2</sup> (A\$m)

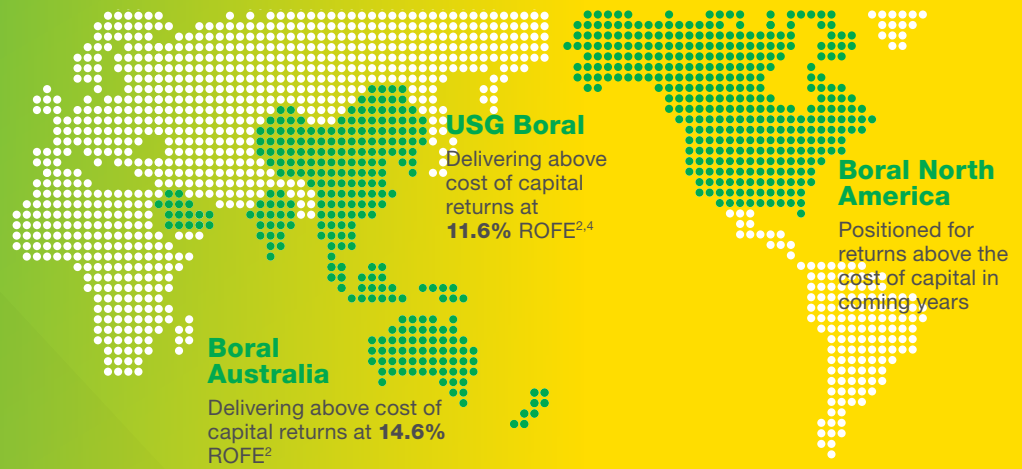


### Reduced Environmental footprint

Emissions intensity<sup>3</sup> (tonnes of CO<sub>2</sub>-e per A\$m revenue)



## DELIVERING RESULTS



### OUR GOALS

**Zero Harm**



**Performance excellence**



**Sustainable growth**



## CREATING VALUE

1. Injuries per million hours worked. Includes employees and contractors in 100%-owned businesses and 50%-owned joint venture operations.
2. Excluding significant items.
3. For Boral's 100%-owned operations and Boral's share from 50%-owned joint venture operations. Revenue adjusted to include 50% of underlying revenues from USG Boral and Meridian Brick joint ventures.
4. Based on USG Boral underlying EBIT.



*Investors*  
Sector best returns that exceed the costs of capital



*Community and environment*  
Socially responsible approach to reducing our footprint

# BORAL AUSTRALIA



“Our focus is to maintain our highly integrated, leading positions in construction materials across Australia, and continue to strengthen returns from our materials and building products businesses through performance excellence and innovation.”

JOE GOSS, DIVISIONAL CHIEF EXECUTIVE, BORAL AUSTRALIA

Boral is the largest integrated construction materials company in Australia, with a leading position underpinned by strategically located quarry reserves and a network of approximately 400 operating sites. We also manufacture and supply a focused range of building products. We serve customers nationally in the infrastructure, commercial and residential construction markets.

## PEOPLE<sup>1</sup>



## SITES<sup>2</sup>



## RECORDABLE INJURY FREQUENCY RATE<sup>3</sup>



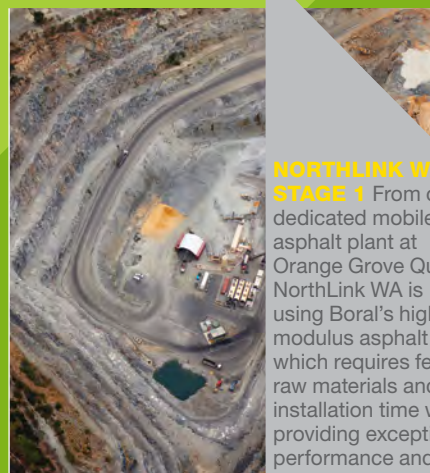
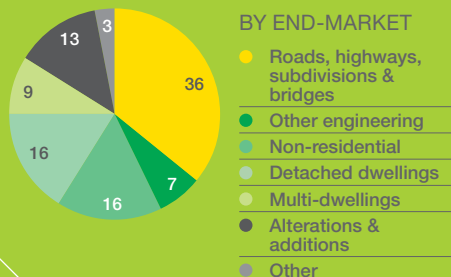
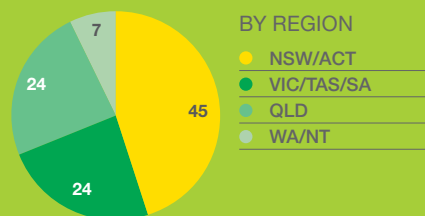
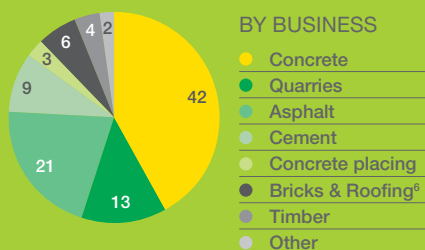
## GREENHOUSE GAS EMISSIONS<sup>4</sup>



Note: data for USG Boral in Australia included on page 14.

- On a full-time equivalent (FTE) basis. Includes Corporate and joint venture employees.
- Includes joint venture sites.
- Includes employees and contractors in 100%-owned operations and 50%-owned joint venture operations.
- For 100%-owned operations and Boral's share of emissions from 50%-owned joint venture operations.
- Based on FY2017 Boral Australia external revenue.
- Includes Masonry.

## BORAL AUSTRALIA REVENUE<sup>5</sup> (%)



**NORTHLINK WA STAGE 1** From our dedicated mobile asphalt plant at Orange Grove Quarry, NorthLink WA is using Boral's high modulus asphalt mix, which requires fewer raw materials and installation time while providing exceptional performance and more sustainable pavements.

**WA**  
9 quarries  
12 concrete  
2 asphalt  
1 brick  
1 masonry

## VICTORIA CEMENT REINVESTMENT PROGRESSING

Boral is progressing options to build a replacement portside clinker grinding facility in Geelong to help reduce cement transport and handling costs.



**NT**  
 2 quarries  
 1 concrete



Photography supplied by the Gateway Upgrade North project, Department of Transport and Main Roads

**GATEWAY UPGRADE NORTH**

Boral is supplying asphalt for the major motorway upgrade in Brisbane's north from a combination of fixed and mobile asphalt plants. Our strong quarry position helps ensure security of supply of aggregates, and quality control.

**QLD**  
 20 quarries  
 62 concrete  
 16 asphalt  
 1 cement  
 1 masonry



**AUSTRALIA'S LONGEST ROAD TUNNEL**

At 30 June 2017, Boral had supplied 85,000m<sup>3</sup> of concrete to the NorthConnex motorway project from a purpose-built mobile batch plant at Mount Kuring-gai in northern Sydney. Boral will supply a total of 530,000m<sup>3</sup> of concrete to the \$3 billion project.

**SA**  
 10 quarries  
 11 concrete  
 2 asphalt  
 1 roofing  
 1 masonry

**NSW /ACT**

21 quarries  
 93 concrete  
 13 asphalt  
 4 cement  
 2 roofing  
 9 timber



**SYDNEY CONCRETE NETWORK STRENGTHENED**

The on-time and on-budget completion of two replacement concrete plants in Granville and Kirrawee, NSW (pictured), has strengthened our concrete network in the high-activity western and southern Sydney markets.

**VIC**  
 12 quarries  
 41 concrete  
 8 asphalt  
 1 cement  
 1 roofing



**SECURING LONG-TERM QUARRY RESOURCES**

Commissioning of the primary and tertiary sections of the Deer Park Quarry, Vic, replacement processing plant commenced in June 2017. The new, increased capacity plant is part of a \$200 million multi-year quarry reinvestment program in Melbourne, Perth and Brisbane.

**TAS**  
 4 quarries  
 5 concrete



# BORAL AUSTRALIA



Boral is supplying and laying asphalt for the Gateway Upgrade North in Brisbane, Qld. Photography supplied by the Gateway Upgrade North project, Department of Transport and Main Roads.

## DRIVING OPERATIONAL EXCELLENCE FROM THE GROUND UP

In striving for continuous improvement, in FY2017 Boral Australia employees – from the front-line through to senior management – generated over 530 ideas to grow earnings in their businesses. The division's Value Improvement Process (VIP) involves annual collaborative workshops to identify potential business cost savings and revenue growth ideas.

For example, at the Wingfield concrete plant in South Australia, the simple move from using bagged silica fume – an ingredient in concrete – to bulk deliveries has saved \$240 per tonne used, and reduced manual handling and truck movements into the plant.

“Not only does the VIP support our continuous improvement objectives in Boral Australia, the process encourages employee engagement and collaboration across the business,” says Wayne Manners, Executive General Manager WA/NT and Building Products, who leads the program.

Members from senior management through to plant operators and drivers participate in the workshops. Of the projects and ideas generated in FY2017, 466 have been actioned or are under development. They should realise an annualised financial benefit of more than \$100 million in cost savings and efficiencies.

## HELPING TO BUILD GREAT MAJOR PROJECTS

Boral is taking advantage of the uplift in major roads and infrastructure activity across the country, demonstrating our capability in major, complex projects and the benefits of our integrated construction materials network.

In Western Australia, while the residential construction market has cooled following the slowing of the resources sector, we have secured work on major road, rail and other infrastructure projects like NorthLink WA and the Forrestfield-Airport Link rail service.

Meanwhile in NSW, growing activity in major road projects is expected to more than offset lower materials volumes associated with multi-residential construction activity coming off peak levels. We are currently supplying materials to the NorthConnex and Bringelly Road projects in Sydney and to the Pacific Highway upgrade on the NSW north coast.

Boral's dedicated Project Management Office supports our efforts on major and complex client projects nationally – from tendering to project delivery. Our ongoing success in delivering large-scale, technically challenging major projects means that we are well positioned to secure a large share of the \$75 billion infrastructure budget announced by the Federal Government from FY2018.

Some of the major projects we are already working on are listed below:

Boral's current major project pipeline	Products supplied	Total project cost	Estimated completion
Mitchell Freeway, WA	asphalt	\$0.3bn	2017
Toowoomba Second Range, Qld	asphalt	\$1.8bn	2018
Bringelly Road Stage 1, NSW	asphalt	\$3.3bn	2018
Pacific Hwy, Nambucca, NSW	concrete	\$0.6bn	2018
NorthLink Stage 1, WA	asphalt	\$1.1bn	2018
Warrego Highway Upgrade Stage 2, Qld	asphalt & quarry materials	\$0.6bn	2018
Gateway Upgrade North, Qld	asphalt	\$1.1bn	2019
Amrun Project, Qld	concrete	\$2.6bn	2019
Kingsford Smith Drive, Qld	asphalt & concrete	\$0.7bn	2019
NorthConnex, NSW	concrete	\$3.0bn	2019
Forrestfield-Airport Link, WA	concrete	\$1.2bn	2019
Northern Connector Road, SA	asphalt	\$1.0bn	2020

## DEVELOPING INNOVATIVE, SUSTAINABLE CONSTRUCTION MATERIALS

Focused on research and technology in cement, concrete and alternative binders like fly ash, the Innovation Factory in Maldon, NSW, is helping create new sustainable and innovative construction materials.

The Innovation Factory developed and patented lower-carbon, high-performance ENVISIA® concrete, which uses 60% less Portland cement than conventional concrete, reducing carbon emissions associated with its production.

Two landmark projects featuring ENVISIA® were completed in FY2017: the 333 George Street office and retail building in the heart of the Sydney CBD, and the new Stokehouse restaurant in Melbourne's St Kilda – Australia's only 5-star Green Star rated restaurant.

A second tier of low-carbon ENVISIA® concrete products is currently in the works, enabled by new technology developed and patented by the Innovation Factory, as well as a number of other value-added, innovative products like self-compacting and low-heat concretes.

Top image: Paul Smyth, Technical R&D Lab Supervisor at the Innovation Factory in Maldon, NSW

Bottom image: Stokehouse restaurant in Melbourne's St Kilda features ENVISIA®



## BUILDING CUSTOMER AND COMMERCIAL EXCELLENCE

Being number one for our customers is a key pillar of Boral Australia's zero|one|ten strategy. In addition to becoming more customer-centric by better understanding their needs and improving the customer experience, Boral Australia is working on maintaining and improving our market positions while ensuring we obtain a fair price for our products and services.

As part of this focus on customer and commercial excellence, we are implementing a multi-year program that aims to improve the way we manage revenues and margins. The program encompasses processes, people and technology, and seeks to ensure that our national pricing systems and processes truly reflect the value of our products and services. It will help to improve the competencies of our sales teams through training and recruitment, and embrace world-class sales tools and systems.

Following a six-month pilot program in our Southern Region and Cement businesses, Boral Australia has established national principles to guide pricing behaviour, as well as the design for a national pricing system. The Southern Region pilot program so far is delivering around 0.5% margin improvement.

The next phase of the commercial excellence program involves the implementation of the pricing systems and processes, and the nationwide roll-out of a multi-year sales training program benchmarked to global best practice.

## GOOD SAFETY PERFORMANCE IS GOOD FOR BUSINESS

Throughout Boral, we see evidence that good safety performance is an indication of a well-run, efficient business, which leads to good financial results. In part, this is because good safety outcomes are rewarded with lower workers' compensation and insurance costs.

Over the past decade, Boral Australia's workers' compensation and injury-related costs have diminished dramatically as employee and contractor injuries have continued to reduce.

As an example, a key indicator of contractor safety performance is the value of legal liability claims associated with injuries made by contractors against Boral.

This currently stands at around \$3 million, compared with open contractor injury claims that exceeded \$40 million 10 to 15 years ago. Improved safety performance together with better contractual rigour and contracting capability are the major contributors to these results.

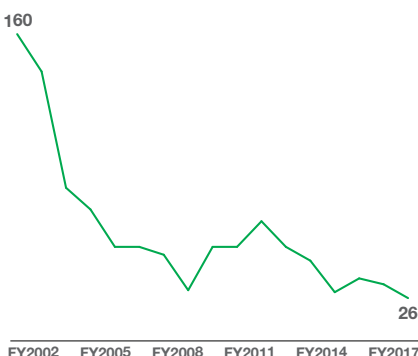
A flow-on benefit is that Boral now incurs on average \$5.5 million less per year in liability premiums and uninsured contractor injury claim excesses compared with 10 to 15 years ago.

Ongoing improvements in contractor safety management, including Boral's upgraded contractor pre-qualification program introduced in early 2017, are continuing to reduce our injury and insurance costs.

Employee-related workers' compensation claims and costs have also seen a long-term decline associated with the continuing trend of fewer injuries.

### Boral's liability claims, FY2002–2017

— Number of claims



**“To sustain our performance, we are investing in our commercial culture and developing our people. Our focus on customer and commercial excellence will help ensure that Boral is number one for our customers.”**

JOE GOSS, DIVISIONAL CHIEF EXECUTIVE, BORAL AUSTRALIA

# USG BORAL

Boral's 50:50 joint venture with USG Corporation, USG Boral is a leading manufacturer and supplier of wall and ceiling solutions across the Asia Pacific and Middle East. With a presence in 14 countries plus export markets, USG Boral produces plasterboard-based wall and ceiling lining systems, mineral fibre ceiling systems, metal framing, joint compounds, high-performance panels and accessories.

**RIYADH METRO PROJECT** USG Boral supplied custom-made stud systems, specialist plasterboards and Sheetrock® joint compounds for the installation of 10 metre high partitions for a metro line depot in Saudi Arabia's capital.



**SAUDI ARABIA**  
 1 metal  
 1 mineral fibre ceiling  
 1 joint compound

**OMAN**  
 8 m<sup>2</sup> board capacity /1 line  
 1 gypsum mine

**INDIA**  
 9 m<sup>2</sup> board capacity /1 line  
 2 metal  
 1 joint compound

## PEOPLE<sup>1</sup>



## SITES<sup>2</sup>



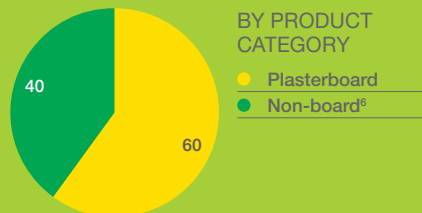
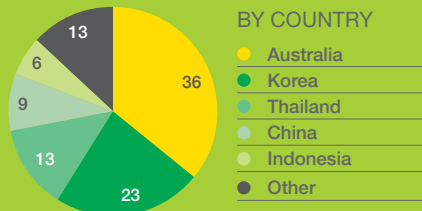
## RECORDABLE INJURY FREQUENCY RATE<sup>3</sup>



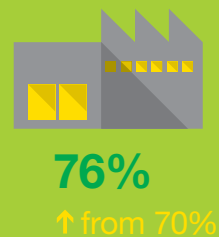
## GREENHOUSE GAS EMISSIONS<sup>4</sup>



## USG BORAL REVENUE<sup>5</sup> (%)



## BOARD CAPACITY UTILISATION



**NEW SOUTH INDIAN BOARD PLANT** Construction of a new plasterboard plant in Chennai, with production capacity of up to 30 million m<sup>2</sup>, has been approved by the Board. Improvements were also made at the Khushkhhera plasterboard and metal plant in the north of India in FY2017.



**“USG Boral is leveraging long-term growth across our markets, delivering innovative solutions for our customers and increasing penetration of gypsum-based interior linings and related products, especially in fast-growing countries in Asia.”**

FREDERIC DE ROUGEMONT,  
CEO, USG BORAL

1. On a full-time equivalent (FTE) basis.  
 2. Includes plasterboard, ceiling tile, metal products, compounds, mineral wool and cornice production. Certain facilities and gypsum mines held in joint venture with third parties. Production of plasterboard and other products may be at the same physical location.  
 3. Includes employees and contractors.  
 4. Boral's 50% share of emissions.  
 5. Based on FY2017 underlying revenue for USG Boral.  
 6. Includes ceiling tile, metal products, joint compounds and plasters, cornice, mineral wool, and Australian contracting revenues.



## CHINA

143 m<sup>2</sup> board capacity  
/6 lines &  
1 ceiling line

- 3 metal
- 1 mineral fibre ceiling
- 3 joint compound
- 1 mineral wool

## SOUTH KOREA

153 m<sup>2</sup> board capacity  
/4 lines &  
1 ceiling line  
2 joint compound



### KOREA'S DANGJIN PLANT EXPANSION

The initial phase of the Dangjin warehouse expansion was completed in February 2017, providing an additional 5,000m<sup>2</sup> of covered floor space. Engineering design for the additional 30 million m<sup>2</sup> of plasterboard production capacity is progressing as planned.

## THAILAND

105 m<sup>2</sup> board capacity  
/3 lines &  
1 ceiling line

- 1 metal
- 1 gypsum mine
- 1 joint compound

## VIETNAM

30 m<sup>2</sup> board capacity  
/1 line &  
1 ceiling line  
1 metal

## MALAYSIA

11 m<sup>2</sup> board capacity  
/1 line &  
1 ceiling line

- 1 metal
- 2 joint compound

## INDONESIA

72 m<sup>2</sup> board capacity  
/3 lines &  
1 ceiling line  
1 metal

- 1 joint compound

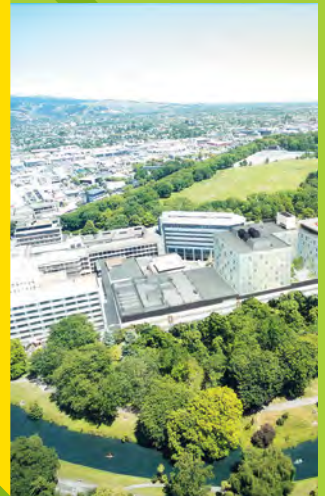


### DRIVING INDUSTRY RESEARCH AND INNOVATION

Inaugurated in August 2016, the Research and Development Centre, adjacent to the Saraburi plant in Thailand, focuses on operations excellence, new product and platform extensions, and collaboration and technology transfer from both USG and Boral in the USA.

### REBUILDING CHRISTCHURCH HOSPITAL

The 62,000m<sup>2</sup> building is USG Boral's first major project in Christchurch and the largest government project in the Canterbury rebuild following the 2011 earthquake. USG Boral is supplying seismically-designed metal stud walls and ceiling grid, a fully-braced acoustical ceiling package, and full plasterboard systems with more than 230 wall options.

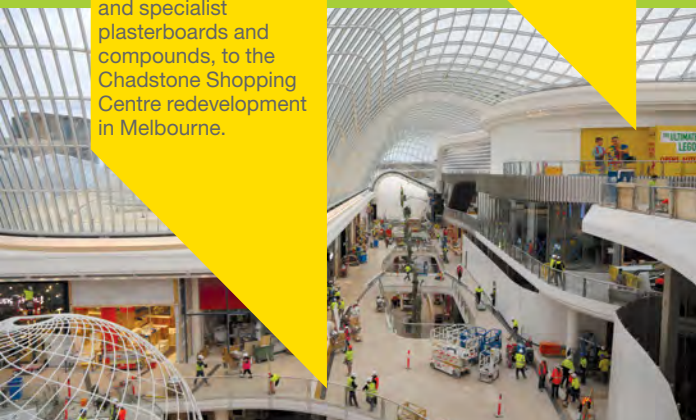


## AUSTRALIA

86 m<sup>2</sup> board capacity  
/3 lines  
1 metal  
1 gypsum mine  
1 joint compound  
2 cornice

### AUSTRALIA'S LARGEST SHOPPING CENTRE

USG Boral supplied 115,000m<sup>2</sup> of lining products, including FIBEROCK®, lightweight Sheetrock® and specialist plasterboards and compounds, to the Chadstone Shopping Centre redevelopment in Melbourne.



## NEW ZEALAND

3 metal

# USG BORAL



The Plasterboard Lab at the Research & Development Centre in Saraburi, Thailand



## METAL CEILINGS NOW AVAILABLE IN ALL MARKETS

The growing trend for innovative interior design is seeing more interesting and visually stunning ceilings in a variety of settings, from airports and rail stations to shopping malls and hospitality and retail venues.

The modern aesthetics of USG Boral's metal ceilings range are now available in 10 countries in Australasia, Asia and the Middle East, strengthening our position as a full ceilings solution provider.

## INNOVATION INSPIRED BY YOU™

As part of the Group's investment in innovation, USG Boral established a centralised research and development (R&D) capability in 2016, leveraging expertise and world-class technologies of both USG and Boral.

Based in Thailand, the R&D teams are focused on technology and innovation in five core areas: plasterboard and panels, compounds and surfaces, industrial plasters, systems development, and building sciences.

Most of the teams operate in modern laboratories in the state-of-the-art Research & Development Centre in Saraburi and a secondary laboratory in Chonburi, assessing raw materials, formulations, products and systems. The building sciences team based in Bangkok analyses interior and exterior building performance, including materials, fire protection, energy efficiency and acoustics, for better selection of materials and improved building designs.

Collaborating with USG and Boral, the R&D team can easily access technologies from USG's Corporate Innovation Center in Illinois and Boral's Innovation Factory in Texas, both in the USA. This approach supports the introduction of lighter-weight, improved functionality, and more sustainable plasterboard products; higher performance substrates and ceiling products; novel compounds and plastering solutions; and a range of alternative binder technologies for exterior applications.

**“USG Boral's research and development group plays an integral role in our position as leading provider of building solutions in all our markets, and will set the standard for industry innovation.”**

JOE HOLMES, CHIEF OPERATING OFFICER, USG BORAL



## SUSTAINABILITY FEATURES IN NEXT GENERATION SHEETROCK®

Following the successful roll-out of lightweight Sheetrock® products across our markets, the next generation of board technology from USG significantly reduces the need for natural resources and the impact on the environment in manufacturing.

In March 2017 in the USA, USG launched the revolutionary Sheetrock® Brand EcoSmart Panels, which use 25% less water in manufacturing, with a 20% reduction in greenhouse gas emissions associated with the manufacturing process.

The more sustainable products maintain the lightweight, high-strength and low-sag characteristics of Sheetrock® – benefits which have contributed to strong adoption rates across USG Boral's markets, especially in Australia. As a result of the strong customer demand, Sheetrock® Brand EcoSmart Panels are being piloted in the Australian market in 2017.

## COLLABORATING FOR GLOBAL SOURCING, LOCAL PROCUREMENT

Since forming the joint venture in 2014, USG Boral's efforts in strategic procurement and supply chain management have delivered more than US\$40 million in cost savings.

With manufacturing and distribution operations spanning 14 countries across Asia, Australasia and the Middle East, collaboration has been the key to transforming from a country-specific sourcing model to an integrated global supply chain for raw materials like paper, gypsum and steel. Collaborating across countries has also been crucial in leveraging key suppliers, which has reduced supply risks, and allowed knowledge and information to be shared to help cut costs in the areas of energy, logistics and transportation.

Under a "Global Sourcing, Local Procurement" philosophy, USG Boral's key global commodity strategies, supplier relationships and global agreements are managed centrally with local business units implementing the strategies at the local country level.



USG Boral's Procurement team with CEO Frederic de Rougemont at the 2017 Supplier & Procurement Summit

**"The next generation of Sheetrock® will enable our customers to push the limits of design while making a positive impact on the community and the environment."**

FREDERIC DE ROUGEMONT,  
CEO, USG BORAL



A safety briefing at the Port Melbourne plant in Victoria

## SAFELY MANAGING PLANT INTERRUPTIONS

Across our manufacturing plants in Asia, Australia and the Middle East, USG Boral employees have been working together to understand risks and develop skills to safely handle workplace interruptions like machinery jams, chemical spills and power failures.

USG Boral studied the safety performance at plants during breakdowns or unexpected activities over more than six months to early 2017. Labelled "Upset Conditions", these activities required some form of the "Lock Out, Tag Out, Try Out" (LOTOTO) safety process which relates to work on energised equipment, such as maintenance activities or process fault fixes.

"The majority of significant LOTOTO breaches and related injuries in the period occurred during an Upset Condition," says USG Boral's Group Environment, Health and Safety Director Brent Gapes. "We identified breaches to policy and opportunities to improve compliance, as well as a heightened increase in injury rates."

To ensure these plant interruptions are managed safely and efficiently, USG Boral rolled out the Upset Conditions program which is designed for staff to understand potential incidents at a site, review standardised Safe Work Method Statements (SWMS), and develop training and practice of the standardised methods.

The first phase of the three-step program has been completed at all USG Boral manufacturing plants, involving workshops with plant operators to identify their daily challenges and all potential workplace interruptions and risks.

The second, ongoing phase of analysing gaps and training in standard operating procedures and SWMS is well underway. The third phase of training and practice of standardised methods to fix Upset Conditions has recently commenced at all sites, with lessons learned to be incorporated in routine training and site risk management processes.

1. A systematic process that requires the removal of all sources of energy to the equipment before "Locking Out" – physically restricting the ability to turn on the equipment; "Tagging Out" – labelling a physical lock with the task and employee's details; and "Trying Out" the energy sources and lock to ensure the potentially damaging energies are fully removed before the work task commences.

# BORAL NORTH AMERICA

Formed as a new division in May 2017, Boral North America combines the Construction Materials and Building Products operations of Boral USA and the newly acquired Headwaters Incorporated across the USA, Mexico and Canada.

In Construction Materials, Boral has industry-leading positions in fly ash processing and distribution, as well as a Texas-based concrete block business and Denver concrete and quarries operations. In Building Products, we manufacture and supply stone veneer, roof tiles, windows and light building products, including trim, siding and shutters, for residential and commercial markets.

Boral also has a 50% share of the Meridian Brick joint venture, which was formed with Forterra Brick in November 2016.

## PEOPLE<sup>1</sup>



## SITES<sup>2</sup>



## RECORDABLE INJURY FREQUENCY RATE<sup>3</sup>

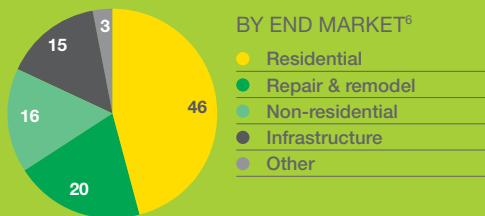
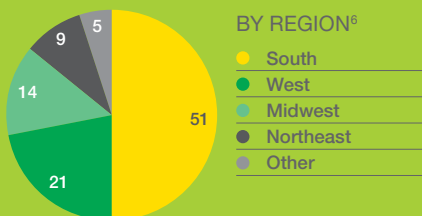
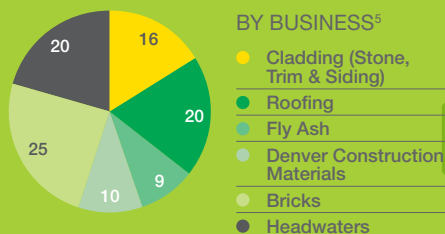


## GREENHOUSE GAS EMISSIONS<sup>4</sup>



1. On a full-time equivalent (FTE) basis. Includes Headwaters and Meridian Brick employees.
2. Includes Headwaters and Meridian Brick sites.
3. Includes employees and contractors in 100%-owned operations and 50%-owned joint venture operations. Does not include Headwaters for FY2017.
4. For 100%-owned operations and Boral's share of emissions from 50%-owned joint venture operations. Does not include Headwaters businesses for FY2017.

## BORAL NORTH AMERICA REVENUE (%)



5. Based on FY2017 external revenue for Boral North America, including 8 weeks of Headwaters, 4 months of 100% consolidated Boral Bricks and Boral's 50% share of underlying revenue from the Meridian Brick joint venture which is not included in reported revenue.
6. Based on proforma FY2017 revenue for Boral USA and Headwaters combined, including Boral's 50% share of underlying revenues from the Meridian Brick joint venture.



## NEW CULTURED STONE PROFILE TAKES OFF

Launched in mid-2016, the new Pro-Fit<sup>®</sup> Modera<sup>™</sup> LedgeStone profile of Cultured Stone<sup>®</sup> by Boral<sup>®</sup> is featured on the interior, exterior and fireplace of this home in Vancouver, Washington.

## WEST

- 21 fly ash
- 9 roofing
- 2 cultured stone
- 8 concrete & quarries

## UPGRADED TILE PLANT FOR SAFER, MORE EFFICIENT OPERATIONS

At Boral's concrete roof tile plant in Phoenix, Arizona, an upgrade of the site's curing plant and equipment is delivering safer, higher product quality and more energy efficient outcomes. This was the first of five plant upgrades across the Boral Roofing manufacturing network.





**“Boral North America has transformed substantially, and we will continue to grow through innovation and new product development, market growth in large-scale building and construction markets, and over time through strategically-aligned acquisitions.”**

DAVID MARINER, PRESIDENT & CEO,  
BORAL NORTH AMERICA

## CANADA

- 4 bricks
- 1 roofing



### LINE UPGRADE MAINTAINS GROWTH FOR BORAL TRUEXTERNAL®

Doubling of production capacity and the addition of equipment and employees at the Salisbury, North Carolina, plant in FY2017 have ensured the steady supply of Boral TruExterior® Siding & Trim across all profiles to meet the strong market interest and adoption of the lightweight, poly-ash products.

## MIDWEST

- 57 fly ash
- 2 stone
- 3 light building products
- 2 bricks

## SOUTH

- 65 fly ash
- 6 block
- 6 roofing
- 1 stone
- 3 light building products
- 3 windows
- 17 bricks



### FLY ASH INVESTMENT FOR MORE DEPENDABLE SUPPLY

In Houston, Texas, a new 20,000-ton storage facility in the Headwaters network is providing customers with a more dependable supply of fly ash, particularly during warmer months when fly ash production is lower and construction activity higher. Operational in March 2017, this facility represents the start of Boral's broader plan to expand fly ash storage capacity.

### CUSTOM-BUILT HOME FEATURES BORAL PRODUCTS

A custom-designed and custom-built single family home in East Greenwich, Rhode Island, features Boral TruExterior® Bevel Siding, Trim and Cultured Stone® by Boral®.



## NORTHEAST

- 5 fly ash
- 2 light building products
- 1 stone
- 1 energy

### REMODELLED HOME FEATURING BORAL COOL ROOF SYSTEM

This 4,400-square-foot home in Orlando, Florida, features the Boral™ Cool Roof System that's warmer in winter and cooler in summer. Boral's Saxony 900 Slate white concrete roof tiles contribute to the improved design and energy efficiency of the home.



# HEADWATERS

## A TRANSFORMATIVE ACQUISITION

### Boral's US\$2.6 billion acquisition of Headwaters Incorporated, completed in May 2017, is a transformative step for Boral.

With a strong strategic fit with Boral's existing US business, the acquisition adds significant scale to Boral's US footprint by adding a portfolio of complementary businesses with improved geographic reach and ability to compete across the USA.

Combined, the new Boral North America is a ~US\$1.8 billion revenue business, with an expanded product offering, a strong manufacturing and distribution footprint, and significantly improved earnings.

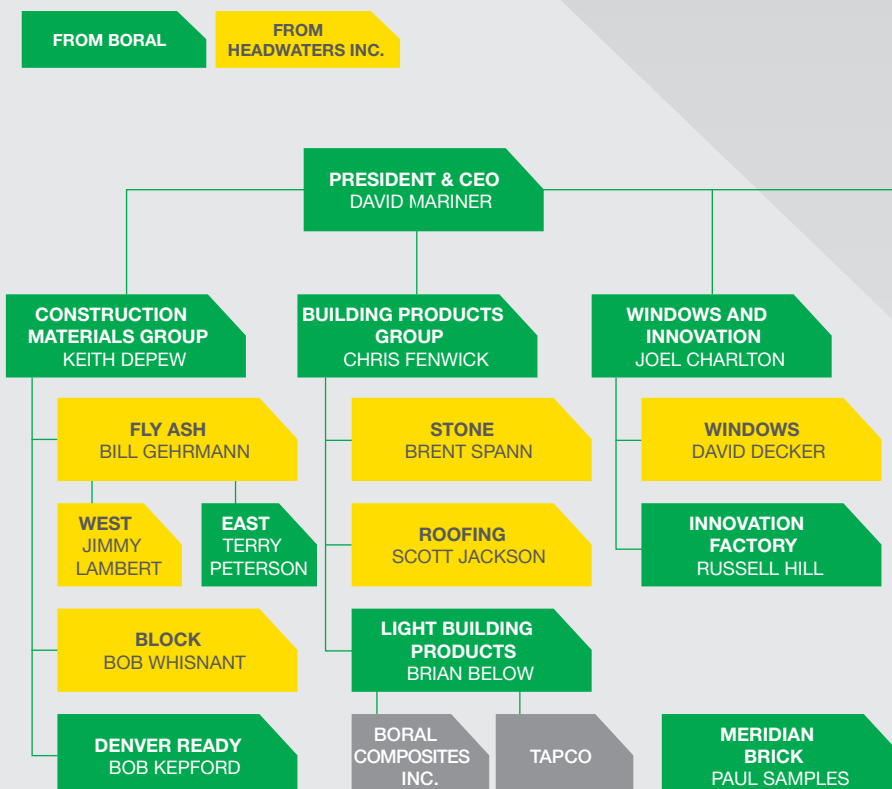
The acquisition significantly grows Boral's fly ash business, expands our light building products offering, and doubles the size of Boral's roofing and manufactured stone positions.

### INTEGRATION OF TWO GREAT BUSINESSES

The new North American executive team is made up of experienced and committed executives from both Boral and Headwaters. From day one, the team has been visiting operations across North America, meeting with employees and setting shared priorities.

David Mariner, President & CEO of Boral North America said: "I am impressed and encouraged by the early progress we have made during the integration of these two great businesses. Our people all across North America have a shared pride in what we do for our customers, shareholders and employees and there is a genuine belief that together we really will *Build something great.*"

### The new Boral North America operations structure



### DELIVERING SIGNIFICANT SYNERGIES

The acquisition of Headwaters is financially compelling. It is expected to deliver synergies of approximately US\$100 million per annum within four years, with all overlapping businesses contributing. Delivered synergies in the first year are estimated to be ~US\$30-\$35 million.

To realise these benefits, one-off implementation costs, such as restructuring, rebranding and plant consolidations, are estimated to be ~US\$100 million.

### Targeted synergies

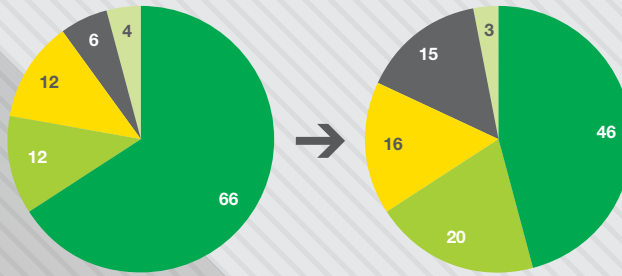


## MORE DIVERSIFIED MARKET EXPOSURE

The acquisition significantly increases Boral's exposure to large addressable US markets at an attractive point in the cycle, providing improved diversification across non-residential, repair & remodel, and infrastructure segments, in addition to the new residential sector.

BY END MARKET (%)

Residential
Repair & remodel
Non-residential
Infrastructure
Other



**Boral USA<sup>1</sup>**  
(pre Headwaters acquisition)

**Boral North America<sup>2</sup>**  
(post Headwaters acquisition)

## PRODUCTS THAT WRAP A HOUSE

Headwaters manufactures and distributes a range of innovative, high margin, niche building products for new residential, repair & remodel and commercial construction. These products are sold through an extensive national network of one-step and two-step distributors, as well as retail sales through big box stores. The business aligns well with Boral's Stone and Roofing businesses.

The acquisition also accelerates development of Boral's light building products platform, from a small but rapidly growing poly-ash trim and siding business into a larger platform with geographic breadth, a multi-channel distribution network and expanded product suite to better serve customers.



1. Based on Boral USA FY2016 external revenue.

2. Based on proforma FY2017 revenue for Boral USA and Headwaters combined.

**4,016**  
EMPLOYEES



**149**  
OPERATING



**18**  
DISTRIBUTION



## FLY ASH – A GROWTH BUSINESS

The combination of Boral's and Headwaters' fly ash businesses creates a national platform in the USA with proforma revenue of over US\$450 million, approximately five times Boral's stand-alone fly ash business. This enables Boral to more efficiently serve customers in a competitive environment.

Fly ash is a by-product from burning coal in power stations. Its properties are similar to Portland cement, which means it can be used as a cement substitute in concrete and other engineering applications.

Encapsulating fly ash in construction materials, building products and engineering applications is a highly sustainable solution that diverts millions of tonnes of fly ash from landfills every year.

Starting in 1987 as a coal-treatment technology company, Headwaters has been a leading player in fly ash for the past 15 years, while Boral USA has been managing and marketing fly ash for over 40 years.

Both companies have developed significant know-how in fly ash beneficiation – the technology associated with improving the physical and chemical properties of fly ash.

The use of fly ash can improve the strength and flow of concrete and is attractive because it means less by-products going to landfill. In the US today, fly ash makes up around 16% of cementitious materials in ready mixed concrete.

As construction activity grows, fly ash demand will increase but there is also opportunity to grow fly ash through increased use of storage facilities, improved beneficiation techniques and working with authorities to increase fly ash specifications in construction.

# BORAL NORTH AMERICA

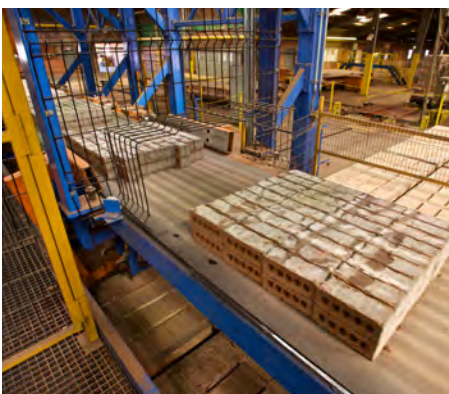


At Boral's Innovation Factory in San Antonio, Texas: (from left) Research Chemist Dr Xi Zhang, Technician Paulina de Los Santos, Chemistry Technician Sara Ploetz and Research Chemist III Dr Ying Zhang

## A MORE EFFICIENT, BETTER POSITIONED BRICKS BUSINESS

Meridian Brick was formed as a 50:50 joint venture in November 2016, combining Boral's and Forterra's brick manufacturing and distribution operations in the USA and Canada. Meridian Brick is now North America's largest brick manufacturer with production capacity of more than two billion bricks.

Following several years of earnings losses from Boral's US bricks business, performance has continued to improve since the formation of the joint venture. Six brick plants and 12 distribution centres were closed while headcount has been reduced by 144 positions, delivering cost savings in FY2017 and a good start to the US\$25 million per annum of targeted joint venture synergies.



## DRIVING INNOVATION AND NEW PRODUCT DEVELOPMENT

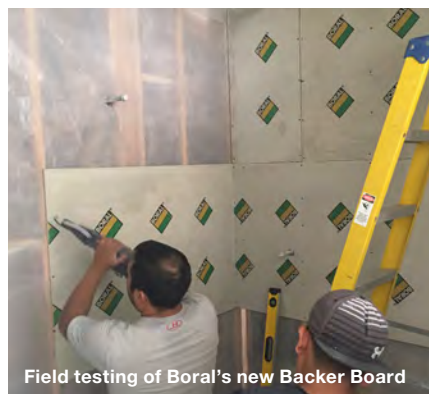
Understanding where the building markets of tomorrow are headed is a key focus for the scientists, engineers and technicians at Boral's Innovation Factory in San Antonio, Texas. Boral's centre of innovation focuses on research and technologies in composite materials and lightweight building products.

The Innovation Factory developed Boral's patented poly-ash technology, which combines fly ash with a proprietary polymer blend, and started commercialising the technology platform in 2011 through the Boral TruExterior® product range. Starting with trim and expanding to include cladding in 2013, the platform continues to grow rapidly

through a formal product development pipeline.

Over the past three years, the Innovation Factory has been developing the next generation of poly-ash technology and products: sheets and panels. This represents a new market and channel opportunity for Boral in exterior sheathing products for cladding and roofing.

Boral Backer Board is the first sheet product for this new market, released for sale in select markets in mid-2017. It is a lighter-weight, poly-ash substitute for traditional cement and fibre cement backer board which is installed in wet areas, such as bathrooms and kitchens, as a substrate for tile. It is water impermeable, fire resistant, easily cut and nailed with no special fasteners, and resistant to mould and mildew. Exploratory work for other applications for sheet products is underway.



Field testing of Boral's new Backer Board

"The work that the Innovation Factory does in identifying and advancing technologies to meet future building and construction needs is an important part of building a transformative culture in Boral," says Joel Charlton, Boral's Executive General Manager, Innovation and Vice President, Intellectual Property.



## TECHNOLOGY DRIVES HIGH VALUE FLY ASH PRODUCTS

Fly ash, a coal combustion by-product with cementitious properties, is sold to the ready mix concrete industry as an alternative to replace a proportion of cement. Over the past few decades both Boral and Headwaters have developed new technologies, opening up new markets and higher value product opportunities for fly ash.

The integration of Boral's and Headwaters' fly ash businesses across the USA brings together two teams with industry-leading knowledge and an expanded portfolio of high-value fly ash products. Currently Boral markets two of them.

Micron3 is an ultra-fine ash with microscopic particle size, used in concrete where high strength is required and the risk of corrosion exists. Micron3 sells for more than 10 times the price of traditional fly ash.

Celceram® is a processed ash that is used as functional filler, currently in the carpet industry, as an alternative to high cost fillers for carpet backing. The product's selling price is two-to-three times higher than traditional fly ash.

With historically limited ash sources for both specialty products, the integration with Headwaters provides the opportunity to identify new sources and expand capacity for the high value fly ash products.



Oak Grove landfill and power plant in Franklin, Texas – a source of fly ash

## THE ZERO HARM JOURNEY IN NORTH AMERICA

In the USA, Boral achieved a safety milestone of over 12 months free of lost time injuries (LTIs) across all its businesses and sites from January 2016 to January 2017. However, the record injury-free period ended not long after with LTIs in the Denver Construction Materials and Meridian Brick businesses, a reminder of why Zero Harm Today remains our top priority, and an achievable objective, for all our businesses including joint ventures.

Meridian Brick has benefited from an impactful change in safety culture at the legacy Forterra Brick sites, which have improved overall safety performance since the joint venture was formed in November 2016. The joint venture's employees have embraced Boral's Zero Harm Today goal with a shared purpose of better safety at all its sites.

With the integration of Headwaters, Boral North America is focused on joining and sharing best practices in safety from the two businesses. Each have been

improving their safety performance, achieved through different methods, such as the Behavioural Accident Prevention Process® and DuPont STOP™ behavioural-based safety processes in Boral businesses, and the Milliken Safety Process which engages workers in safety through committees and working groups at most Headwaters businesses.

"Strong ownership of safety in each business is a perfect place to start, then build on," says Michael Wilson, Boral's Group HSE Director.



Synthetic Materials crew at Plant Bowen, near Cartersville, Georgia – also a Headwaters and Boral fly ash facility

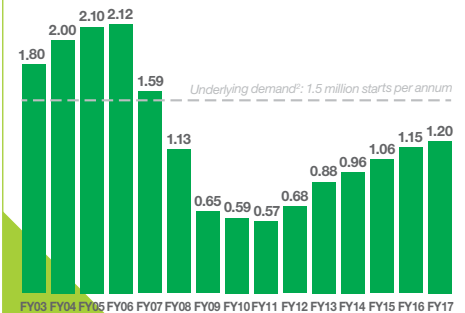
## MARKET RECOVERY ROLLS ON

With total US housing starts up 4% in FY2017 to 1.20 million<sup>1</sup>, including a 7% increase in single family dwelling commencements, the continuing recovery in housing markets bodes well for the expanded Boral North America.

The greater scale and geographic reach of Boral and Headwaters combined enhances our ability to compete across the large and growing North American housing market. And with an expanded portfolio of building products, including more lightweight and sustainable cladding and roofing products, Boral North America is well placed to benefit from the market recovery for many years to come.

In addition, with a significant national footprint in fly ash – which is used as a cement substitute in concrete – Boral North America will benefit from increasing infrastructure and engineering project investment across the USA.

### US housing starts<sup>1</sup> (millions)



1. US Census Bureau seasonally-adjusted annualised housing starts.
2. 50-year average to 2010; source US Census Bureau

**"We have been very impressed with the willingness to share best practice, learn from each other and improve safety by both Boral and Headwaters employees."**

MICHAEL WILSON,  
GROUP HSE DIRECTOR,  
BORAL LIMITED

# RESPONDING TO A CHANGING WORLD

To deliver on our goals, we recognise the need to continually monitor external environmental factors that could impact Boral's long-term growth and sustainability.

We have identified a range of near- and longer-term risks and challenges across the Group. We carefully manage these risks and, when necessary, adapt our strategies to drive success.

Here we highlight some of the actions we are taking in response to the challenges we face.

Page references indicate where the topics are covered in the earlier pages of this Review and in the pages ahead – in Boral's 2017 Sustainability Report.

Further detail about Boral's risks and the Company's risk management approach can be found in the Corporate Governance Statement and the Directors' Report in Boral's 2017 Annual Report

		Health, Safety, Environment (HSE) and Social Risks
RESPONSES	RISKS	<ul style="list-style-type: none"> <li>• Licence to operate</li> <li>• Injuries &amp; incidents</li> <li>• Environmental damage</li> <li>• Regulatory requirements</li> <li>• Community impacts</li> <li>• Workplace relations &amp; human rights</li> </ul>
	BORAL GROUP	<ul style="list-style-type: none"> <li>• Group-wide <b>commitment to Zero Harm</b></li> <li>• Group <b>HSE standards, policies, procedures and training</b> to support divisional strategies <b>32</b></li> <li>• <b>HSE performance monitoring, reporting</b> and accountability frameworks <b>32</b></li> <li>• Monitoring <b>regulatory changes</b> <b>31</b></li> <li>• Group-led diversity program <b>31</b></li> <li>• <b>Leadership development</b> and suite of capability-building activities <b>31</b></li> </ul>
	BORAL AUSTRALIA	<ul style="list-style-type: none"> <li>• <b>Zero Harm</b> and wellbeing initiatives <b>34</b></li> <li>• <b>Heavy vehicle safety</b> management includes training, vehicle monitoring and innovations <b>37</b></li> <li>• <b>Community consultation</b> programs <b>41</b></li> <li>• <b>Flood mitigation and environmental rectification</b> programs <b>42</b></li> <li>• Proactive <b>engagement with regulators</b></li> <li>• <b>Workplace relations</b> supported by proactive engagement with unions and specialist advisers <b>31</b></li> </ul>
	USG BORAL	<ul style="list-style-type: none"> <li>• <b>HSE standards applied consistently</b> across Asia, Australia and the Middle East and are often higher than in-country practices <b>33</b></li> <li>• <b>Safety engagement program</b> including communications campaign, leadership workshops, and a dedicated safety culture month <b>17</b></li> <li>• <b>Use of CCTV</b> to aid incident investigations and improvements</li> </ul>
	BORAL NORTH AMERICA	<ul style="list-style-type: none"> <li>• <b>Headwaters acquisition</b> involved a rigorous review of environmental and safety exposures, including post-completion audits and capital allocation to bring all operations up to Boral standards</li> <li>• Focus on safety observations and near miss reporting <b>37</b></li> <li>• Safety is at the forefront of Headwaters integration activities <b>37</b></li> </ul>

XX Denotes 2017 Boral Review page reference

Industry & Market Risks	Competition Risks	Business Interruption	Megatrends
<ul style="list-style-type: none"> <li>Structural &amp; cyclical demand changes</li> <li>Political cycles / uncertainty</li> <li>Economic growth / investment</li> <li>Input costs / inflation</li> <li>Regulatory &amp; fiscal policy changes</li> </ul>	<ul style="list-style-type: none"> <li>New capacity &amp; market entrants</li> <li>Customer concentration</li> <li>Pricing dynamics</li> <li>Regulatory requirements</li> <li>Technology / R&amp;D and product innovation</li> </ul>	<ul style="list-style-type: none"> <li>Plant &amp; systems failure</li> <li>Cyber security</li> <li>Weather impacts</li> <li>Reserves &amp; resources</li> <li>Supply chain</li> <li>Business conduct / reputational damage</li> </ul>	<p>Monitoring megatrends and positioning the business to respond to them takes place in a coordinated Group wide approach, with reporting through to the Executive Committee and Board.</p>
<ul style="list-style-type: none"> <li>USD assets funded with USD debt as much as possible to significantly <b>reduce foreign exchange-related balance sheet exposures</b></li> <li>Energy inputs (diesel, gas and electricity) <b>hedged to reduce market cycle impacts</b></li> <li><b>Diversification</b> to reduce impacts of individual geographies and markets</li> <li><b>Group procurement</b> function optimising Boral's cost base</li> </ul>	<ul style="list-style-type: none"> <li>Centralised <b>competition law training</b></li> <li>Monitoring and reporting <b>regulatory changes and industry trends</b></li> <li><b>Transformation Action Group</b> to identify and foster new ways to make and sell new and existing products</li> <li><b>Utilisation of technology</b> for more targeted sales and marketing</li> </ul>	<ul style="list-style-type: none"> <li><b>Business continuity planning</b> with regular crisis simulations</li> <li>Formal bottom-up <b>enterprise risk management processes</b> in place</li> <li><b>Reserves planning and capital allocation</b></li> <li>Developing <b>Cyber Security strategy</b> with reporting through to Board level</li> <li>Centralised <b>Code of Conduct training</b> and associated policies</li> </ul>	<p>Megatrends that are shaping our strategies include:</p> <ul style="list-style-type: none"> <li><b>Climate-related risks and opportunities</b> 42</li> <li><b>Innovative building &amp; construction materials &amp; methods</b> 44</li> <li><b>Digital disruption</b> 28</li> <li><b>Changing demographics &amp; urbanisation</b> 44</li> </ul>
<ul style="list-style-type: none"> <li>Leveraging demand shift to major infrastructure through <b>investments in quarries, asphalt and concrete</b> operations and <b>strengthened capability</b> in contracting and projects management 12</li> <li>Central oversight and tracking of <b>major projects</b> to target participation strategies 12</li> <li>Finalising plans to build clinker import terminal in Victoria to <b>strengthen import capability</b> and <b>optimise cost base</b> 10</li> <li><b>Operational Excellence</b> program and cost reduction initiatives to offset inflation 13</li> </ul>	<ul style="list-style-type: none"> <li><b>Realigning portfolio</b> to reduce exposure to lower returning building products and to strengthen construction materials</li> <li><b>Commercial Excellence</b> initiative and customer centricity program to improve customer service and enhance pricing outcome 13</li> <li><b>Supply chain optimisation</b> through the introduction of enhanced decision-making tools and improved fleet utilisation</li> <li>Maintaining <b>Australian Building and Construction Commission (ABCC) compliance</b> to enable bids on Federally funded work</li> </ul>	<ul style="list-style-type: none"> <li>Restructure of Boral IT to <b>Boral Digital Services, improving agility and responsiveness</b></li> <li>Monitoring and <b>preparedness for weather-affected disruption</b> including water management plans, flexible workforces and additional equipment where required 42</li> <li>Best practice monitoring and reporting support <b>Chain of Responsibility compliance</b></li> <li>Dedicated <b>property and environmental experts</b> to support compliance and licence to operate</li> </ul>	
<ul style="list-style-type: none"> <li><b>Capacity planning</b> to respond to demand changes, including upgrades in India and Korea, and closure of underutilised plant in Chengdu, China 14</li> <li><b>Product leadership and differentiation strategy</b> underpinning performance through market uncertainty in Thailand and Indonesia 17</li> <li><b>Anti-corruption measures</b> including clear accountability, policies, training, and internal and external audits 29</li> </ul>	<ul style="list-style-type: none"> <li><b>Innovation investment</b> to further strengthen competitive advantage e.g. next generation Sheetrock® being market tested 17</li> <li><b>Differentiation strategy</b> has strengthened USG Boral's response to new capacity / market entrants</li> <li><b>Repositioning Korean business</b> with increased premium products to market</li> </ul>	<ul style="list-style-type: none"> <li><b>Securing gypsum supply</b> through acquisition of reserves and synthetic gypsum supply agreements (e.g. Panja in Thailand)</li> <li>Review of <b>governance structures</b> to manage culture and performance of third party agreements and joint ventures</li> <li>Strategic <b>review of IT platforms</b></li> <li>Multi-year roll-out of Sheetrock® technologies has resulted in a <b>modern, upgraded plant network</b> 14</li> </ul>	
<ul style="list-style-type: none"> <li><b>Shifting portfolio</b> from high fixed cost, energy-intensive to lighter weight products with a more variable cost model; also addresses excess brick capacity 22</li> <li><b>Headwaters acquisition diversifies Boral's exposure</b> to US construction markets 20</li> <li>Monitoring Trump administration impacts – <b>tax reform and infrastructure investment positive</b> for Boral</li> </ul>	<ul style="list-style-type: none"> <li>Dedicated <b>Integration and Synergy Delivery program</b> for Headwaters acquisition</li> <li>Cost and margin initiatives including <b>LEAN and divisional procurement</b> leveraging volume growth opportunities</li> <li>Regionally focused product <b>price analytics and sales strategies</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Long-term availability of fly ash</b> closely monitored and future sources identified 42</li> <li><b>Prioritisation of capital</b> investment aligned with product and market growth</li> <li>Streamlining and <b>upgrading IT systems</b></li> </ul>	

# MANAGING SUSTAINABILITY

Boral's Peppertree Quarry in Marulan South, New South Wales

## OUR STRATEGY

Our business strategy recognises our responsibility to shareholders – to deliver value creation and long-term sustainability. Boral's future depends on us having a robust and socially responsible supply chain, enduring stakeholder relationships, an engaged and reliable workforce, sustainable community and environmental impacts, and businesses that address the needs of today and the future.

In recent years, we have fundamentally altered Boral's portfolio to deliver better financial returns and respond to a changing world. We have been shifting away from energy- and resource-intensive, high fixed cost manufacturing to lightweight, innovative and more variable cost building products and materials.

Through our strategy to transform Boral, we have significantly reduced Boral's environmental footprint. Boral's carbon dioxide equivalent (CO<sub>2</sub>-e) emissions today are 29% below emissions levels in FY2012<sup>1</sup>. This transformation in Boral's footprint is largely a result of consolidations, joint ventures, divestitures, plant closures, innovations and acquisitions over the past five years.

We have strengthened and invested in our traditional Australian construction materials business, with modern plant and equipment, lean operating practices, a commitment to Zero Harm and increased investment in innovation.

We have brought world-leading technologies to plasterboard markets across Asia, Australasia and the Middle East. This is seeing game-changing product performance characteristics for our customers and step-changes in manufacturing processes, and it will continue to drive down water usage, energy consumption and raw material usage.

We are the leader in fly ash technologies in North America, enhancing the use of coal combustion by-products in concrete, plasterboard and cladding products. We are reducing both the carbon- and capital-intensities of our operations in North America, and we are being more responsive to changing customer needs to deliver improved returns.

We are continuing this transformation strategy to be more innovative, focusing on products, materials and operations that have a lighter touch and meet the expectations of our stakeholders. We are investing further in materials-based research and development, driving safety performance towards world's best practice, developing our people to effectively lead and respond in a dynamic world, reducing our environmental footprint, positioning the business for more sustainable growth, and becoming more profitable.

**“ We are looking beyond the horizon, identifying threats and opportunities and responding to commercial, technological, environmental and other societal forces.**

**We recognise that these forces can be a positive catalyst helping us deliver on our uncompromising commitments to our shareholders, the communities in which we operate, our customers who we serve, our fellow employees and the environment, which we have an obligation to protect.”**

**MIKE KANE**  
CEO & MANAGING DIRECTOR  
BORAL LIMITED

1. Boral's reported direct (Scope 1) and indirect (Scope 2) greenhouse gas emissions. Does not include Headwaters. Refer to page 40 for further detail.

## MATERIALITY

Alongside our risk management processes, in 2017 we engaged EY to undertake a materiality review to validate that the sustainability risks and opportunities that are important to our stakeholders are being addressed and communicated.

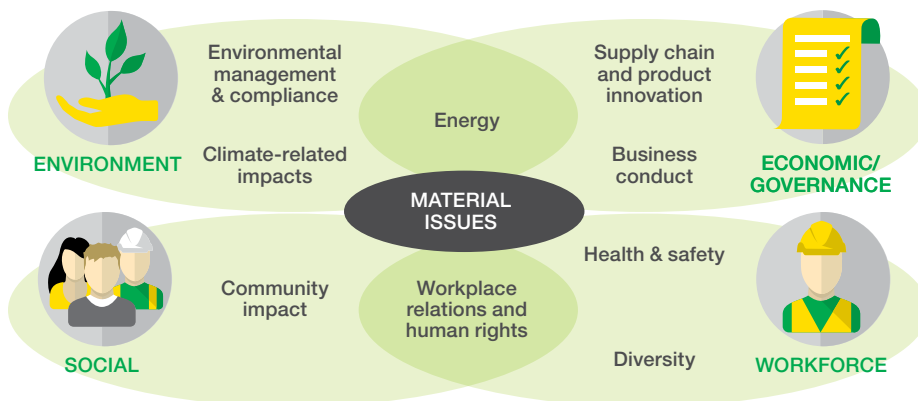
The review included internal stakeholder interviews, desktop peer and media reviews, external industry and sector reviews, and consideration of wider sustainability trends.

Adopting a widely recognised approach to assessing materiality, as outlined below, EY highlighted some enhancement opportunities, which we have started to address in this year's reporting.

1. Scan	2. Stakeholder engagement	3. Prioritisation	4. Validate and report
<ul style="list-style-type: none"> <li>Peer analysis</li> <li>Industry analysis, e.g. megatrends</li> <li>Media analysis</li> </ul>	<ul style="list-style-type: none"> <li>Internal interviews</li> </ul>	<ul style="list-style-type: none"> <li>Distill data collected and quantitatively and qualitatively analyse</li> <li>Rank/score each issue</li> <li>Consolidate into set of priorities</li> </ul>	<ul style="list-style-type: none"> <li>Validation from management and other stakeholders</li> <li>Sign-off</li> </ul>

The following sustainability issues were identified as the most material for Boral, which align well with management focus, prioritisation and outcomes of existing risk assessment processes.

### Material issues by category



These material issues, which are categorised as Environment, Social, Economic/Governance and Workforce related issues, are covered in this Boral Review on the pages listed below.

MATERIAL ISSUES	CATEGORIES	PAGE/S
Health & safety		p.32-37
Environmental management & compliance		p.32-33, 38-39
Energy		p.40
Climate-related impacts		p.42-43
Community impact		p.41
Supply chain and product innovation		p.44-45
Workplace relations and human rights		p.31
Diversity		p.31
Business conduct		p.29

These material issues are also captured in our Risks and Responses summary on pages 24–25, which has been built up using Boral's Group Risk Identification and Management processes disclosed in our Corporate Governance Statement in the 2017 Annual Report (pages 30–43).

## COMMUNICATING OUR SUSTAINABILITY PRACTICES

In addition to this Sustainability Report, information on Boral's sustainability performance is also provided in:

- the Corporate Governance Statement and Directors' Report (including the Remuneration Report) in the 2017 Annual Report – see [boral.com/2017\\_Annual\\_Report](http://boral.com/2017_Annual_Report)
- case studies and features in our internal *Boral News* magazine – see [boral.com/boral\\_news](http://boral.com/boral_news)
- Boral's website, which includes supporting policies and information on sustainable products and Boral's community engagement programs
- pollutant emissions data reported to the National Pollutant Inventory for 94 sites in our Australian operations
- our voluntary responses to CDP, formerly known as the Carbon Disclosure Project, covering climate change, forests and water
- Boral's 2017 public report on gender equality, lodged with the Workplace Gender Equality Agency on 7 June 2017.

This Sustainability Report covers Boral's wholly owned operations and joint ventures that were at least 50% owned by Boral for the year ended 30 June 2017, unless stated otherwise.

With the Headwaters acquisition completed in May 2017, eight weeks of financial performance has been incorporated into the FY2017 results. Reference to Headwaters' sustainability performance has been included in this report; however, sustainability data will be consolidated from FY2018.



Boral Annual Report and Boral News

# MANAGING SUSTAINABILITY CONTINUED



Above: Members of Boral's Transformation Strategy Task Group in Sydney, Australia, in 2016

## A LONG-TERM APPROACH TO STRATEGIC PLANNING

In 2016, 21 young leaders from across the Group came together as Boral's Transformation Strategy Task Group (TSTG) to contribute to Boral's long-term strategy. The TSTG considered megatrends and potential disruptions, such as urbanisation and digital technologies, which could shape Boral in the decade 2020–2030.

Their 12-month project culminated in presentations to the Board and Executive Committee, covering self-driving vehicles and required changes to road construction, energy generation incorporated into the built environment, a more highly skilled workforce, lighter weight and potentially modular construction, and increased mobility and customer connectivity.

The TSTG's work is being advanced by Boral's new senior level, cross-divisional overlay team, the Transformation Action Group (TAG). Reporting to the CEO, the TAG has oversight of Boral's technology and innovation roadmap so that we can better adapt to changes that will impact our products, services and the way we work in the future.



A safety meeting at Boral North America's stone plant in Chester, South Carolina

## SUSTAINABILITY GOALS AND COMMITMENTS

Setting goals and commitments helps drive our operations and align the organisation to our longer-term priorities. Our overarching goal is to deliver Zero Harm Today.

This means zero injuries to our people and working to eliminate adverse environmental impacts. Where elimination is not possible, we seek to minimise the adverse environmental impacts of our operations and, wherever practicable, secure improved environmental outcomes.

Our strategy to shift to lower energy-intensive, lower fixed cost manufacturing with a more balanced mix of innovative and traditional products, means continued reduction in the energy and emissions intensity of our operations as well as Boral's overall emissions footprint.

We have business-specific goals and targets to improve resource efficiencies. For example, in our cement operations we aim to reduce the use of fossil fuels by increasing alternative fuels and applying LEAN manufacturing principles. In USG Boral, we aim to reduce water consumption and emissions through targeted technology solutions that reduce the amount of gypsum and water use in manufacturing.

When it comes to safety, at a Group level and across all of our operations, our target is zero injuries, which means zero injury frequency rates.

Within Boral's businesses there are targets for leading measures such as the number of hazards reported per person per month. These targets support the formation of safety habits, monitor the effectiveness of our system controls, track the completion of corrective and preventative actions, and track progress and benefits of improvement projects.

In other areas we have clearly articulated plans and goals, including in our diversity program. Our diversity goals are detailed and reported against in our Corporate Governance Statement (see [boral.com/corporate\\_governance](http://boral.com/corporate_governance))

## SUSTAINABILITY GOVERNANCE

Our commitment to sustainable development is driven by Boral's Board and Executive Committee.

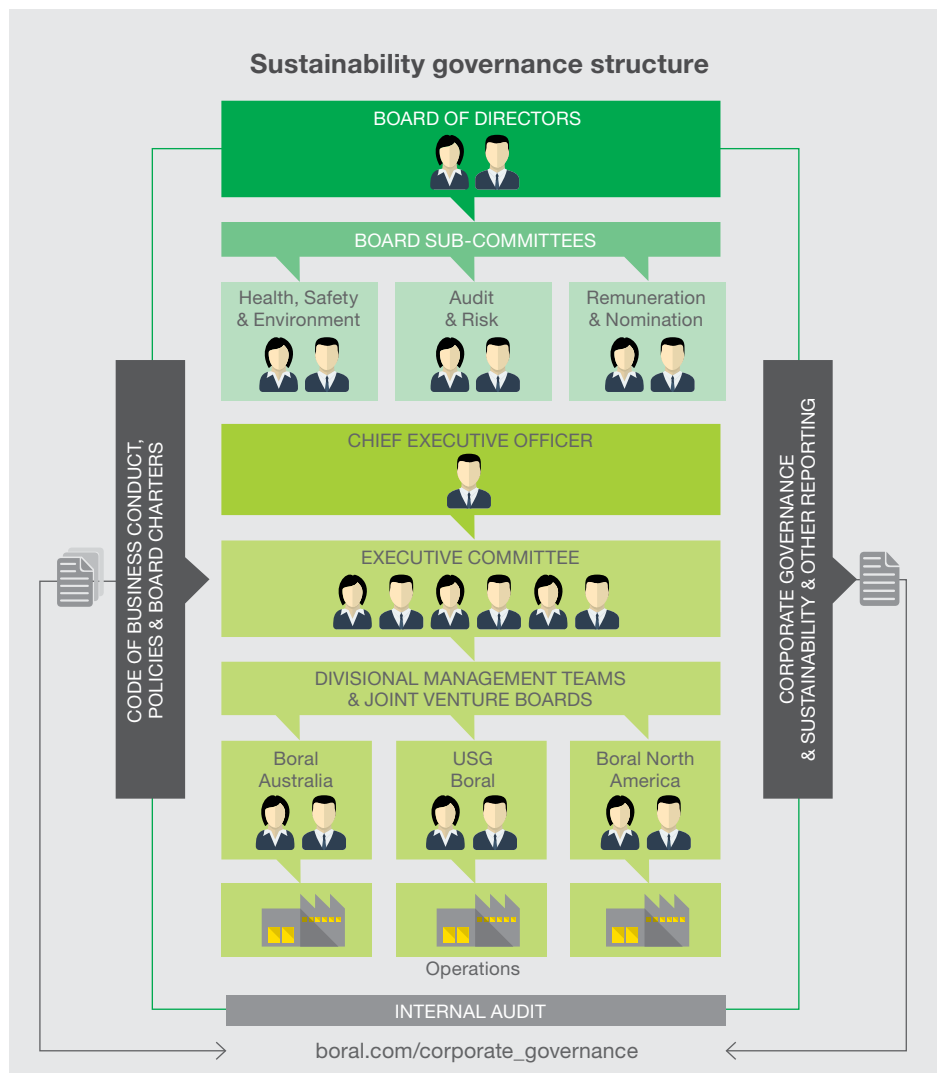
The Board has a Health, Safety & Environment (HSE) Committee, which provides focused leadership and supports the activities of management. The Committee reviews and monitors the performance and effectiveness of Boral's policies, plans, systems and governance structures in relation to HSE, including Boral's response to climate-related impacts.

Boral's governance approach is shown to the right and is detailed in Boral's 2017 Annual Report (pages 30–43).

Day-to-day responsibility for sustainability rests with every employee and is embedded into Group and business-level strategies. The commitment of line managers and their teams to deliver Zero Harm Today and our other sustainability ambitions is critical.

We firmly believe that safety performance is an integral component of leadership and it is therefore linked to base remuneration and employment. As a result, we do not link remuneration incentives with safety performance or other sustainability metrics.

Board discretion can be used to adjust executive remuneration outcomes if there is evidence of a breakdown in management oversight and processes leading to poor safety outcomes.



## OUR POLICIES AND ETHICAL STANDARDS

Boral's Code of Business Conduct and supporting policies set out the legal and ethical standards of behaviour expected of Boral's people. They apply to all of Boral's operations globally.

We take adherence to legal and ethical standards seriously. During FY2017, 35 employees in Boral Australia and Boral North America were dismissed for serious breaches of policy, primarily for breaching safety rules.

Boral's people have access to an external, independent whistleblowing service, known as FairCall, to report possible fraud, illegal acts or misconduct.

KPMG, which operates the FairCall service, provides information to appropriate Boral senior management in order to investigate the potential misconduct. Outcomes are reported to Boral's Audit & Risk Committee.

As part of our Code of Business Conduct, we have formal policies that deal with anti-bribery, corruption and fair competition.

Boral's Code of Business Conduct was reviewed in 2016, and HSE policies were reviewed in 2017 to ensure that they continue to support our business objectives.

### In summary, Boral's policies and compliance systems:

- **commit to obeying all relevant laws**
- **prohibit Boral's businesses, and agents acting on our behalf, from giving and receiving bribes and facilitation payments**
- **prohibit political donations.**

# OUR PEOPLE



A Boral Asphalt crew in the Hunter Valley, NSW

To build a transformative culture to capture growth, innovate, anticipate and respond to a changing world, we need an engaged, diverse and capable workforce led by talented leaders.

## OUR WORKFORCE PROFILE

As at 30 June 2017, we have 16,475 full-time equivalent (FTE) employees including in joint ventures (JVs), and approximately 8,200 contractors working in 17 countries and across a wide range of functions.

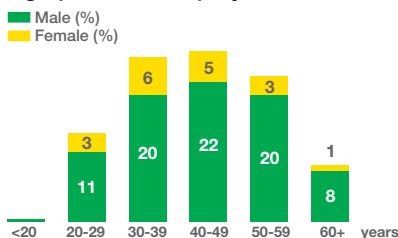
Full-time equivalent	FY2017	FY2016	FY2015
Boral employees	11,499 <sup>1</sup>	8,334	8,356
Boral contractors	~4,800	~4,800	~4,400
JV employees <sup>2</sup>	4,976	3,724	3,676
JV contractors <sup>2</sup>	~3,400	~3,400	~3,000

1. Including 4,016 FTE from Headwaters and excluding employees from Boral Bricks in the USA who are now included in JV employees.
2. Including USG Boral, Meridian Brick and 10 other small Australian-based joint ventures.

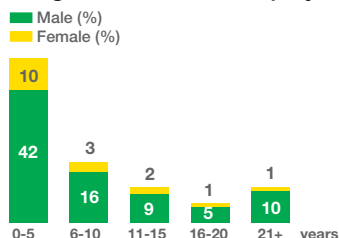
At end FY2017	Boral total	Boral Australia <sup>3</sup>	USG Boral <sup>3</sup>	Boral North America <sup>4</sup>
Women in Boral	18%	13%	18%	22%
Average length of service	8.4yrs	9.3yrs	9.4yrs	8.1yrs
Average age	43yrs	45yrs	41yrs	43yrs
20+ year veterans	12%	13%	15%	9%
Employee turnover for FY2017	15% <sup>5</sup>	15%	12%	16% <sup>5</sup>

3. Excluding joint ventures.
4. Including Meridian Brick joint venture.
5. Excluding Headwaters.

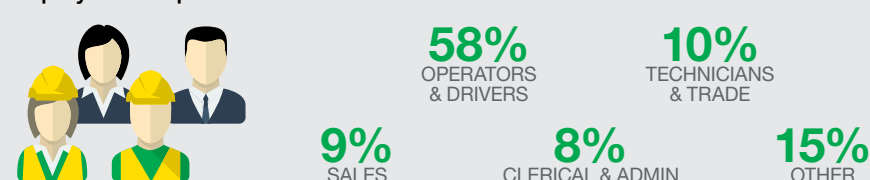
### Age profile of employees



### Length of service of employees



### Employee occupations



## MEASURING EMPLOYEE ENGAGEMENT

Our divisions conduct biennial surveys to measure employee engagement and identify opportunities for improvement.

USG Boral's 2017 AON Hewitt Employee Engagement Survey covered 11 countries and 91% of its workforce. The third quartile score of 56/100 was a 6-point improvement on 2015. Employees rated USG Boral's commitment to safety as one of the biggest drivers of engagement, with learning and development being the area with the largest improvement since 2015. The survey identified opportunities to improve collaboration, learning and development, and employee empowerment.

In September 2017, Boral Australia is again undertaking the McKinsey Organizational Health Index. The 2015 survey resulted in a second quartile score of 70/100 with improvements achieved in strategic direction, motivation, accountability, culture and climate, and innovation and learning, following a third quartile score of 59/100 in 2013<sup>6</sup>. Opportunities to improve around strategy execution and customer focus were identified.

In North America, a pulse survey of Boral and Headwaters employees was undertaken as part of the integration program to identify areas of concern and opportunity to be addressed during integration and beyond.

## INTEGRATING HEADWATERS INTO BORAL NORTH AMERICA

The acquisition of Headwaters added 4,016 FTE employees across more than 170 operational sites. Our North American operations now have 7,053 FTE employees<sup>4</sup>, with an average age of 43 years and average service of 8.1 years.

Bringing together the best of Boral and Headwaters is a key part of the integration. In the first few weeks of integration, senior leaders held more than 80 "meet and greet" sessions across 60 sites with more than 2,000 people.



## DIVERSITY

We believe that a diverse workforce is important for business success and that we should reflect the diversity of our communities.

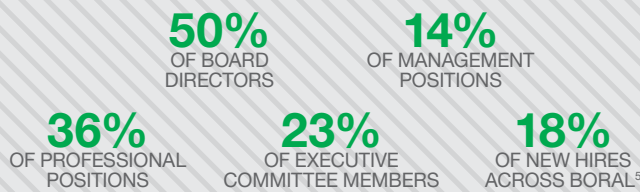
Boral has an established Diversity & Inclusion Plan with Boral's Diversity Council supporting the delivery of targeted outcomes. The plan includes six elements: leadership, communication & education, system & process design, gender equality & pay equity, generational diversity, and Indigenous relations.

In FY2017, Boral partnered with Deloitte to carry out a high-level study into the ability of our Australian workforce to adapt and transform. The findings will be reflected in the FY2018 Diversity & Inclusion Plan.

Other FY2017 focus areas included:

- raising awareness of the impact of unconscious bias, with 18 senior leader diversity awareness and unconscious bias sessions conducted,
- increasing representation of women, particularly in leadership roles, and
- pay equity outcomes, with the female to male average base salary ratio<sup>7</sup> in Boral Australia being favourable at 1.02:1.00.

### Women represent



**Boral is committed to supporting Indigenous employment, programs and communities. We continue to retain approximately 80% of employees through our Indigenous employment program in Australia. In FY2017, the Indigenous Employment and Training Plan for 2016 to 2020 was implemented to continue the work from previous plans from 2006 to 2015.**

**Developed in FY2017, Boral's Reconciliation Action Plan focuses on building on relationships, respect and opportunities for Indigenous communities and will be submitted to Reconciliation Australia, the lead independent body for reconciliation in Australia, in FY2018.**

For more details on diversity at Boral, refer to Boral's 2017 Corporate Governance Statement (pages 39–41) in the 2017 Annual Report or go to [boral.com/corporate\\_governance](http://boral.com/corporate_governance)

## HUMAN RIGHTS AND WORKPLACE RELATIONS

We are committed to a workplace free from intimidation, harassment, bullying, discrimination or unlawfulness, as outlined in our Code of Business Conduct.

All our operations have grievance mechanisms that are accessible, accountable and fair, enabling concerns to be raised without fear of reprimand. This includes Boral's external, independent whistleblowing service, known as FairCall.

Boral also offers employees and their immediate families a free, confidential, professional counselling service, the Boral Employee Assistance Program or BEAP, to help address issues that may affect their work and personal life.

We support the rights of our employees to freedom of association, to choose to unionise and to collective representation,

regardless of their location or function.

We are committed to working honestly and transparently with labour unions and we undertake negotiations in good faith.

In Australia, Boral has some 70 enterprise agreements covering approximately 3,500 employees. We supported the return of the Australian Building and Construction Commission, and all of Boral's relevant enterprise agreements have been varied or replaced with agreements that we are comfortable comply with the Building Code.

In line with the United Nations Guiding Principles on Business and Human Rights, and acknowledging the shift in focus externally, we are undertaking a review to assess the risk of modern slavery in our value chain and the need to address it in our policy framework.

6. Benchmarked against a global database of 1,500 companies.

7. Calculated as the average base cash salary for females as a proportion of the average base cash salary for males, as used in the Workplace Gender Equality Agency Confidential Report.

## TRAINING AND DEVELOPMENT

To help our leaders effectively coach and mentor high-performing and engaged teams, we have established a leadership development program that focuses on personal qualities and behaviours. In FY2017, 100 of our leaders participated in the next phase of the program, including a two-day summit that explored how a leader's world view and attention bias influences the way they lead.

Also in FY2017, Boral Australia partnered with the Australian Graduate School of Management (AGSM) to establish the General Manager Leadership Development Program. Deployed over FY2017 and FY2018, this adds to our suite of development initiatives including Senior Executive Leadership Development, Emerging Leaders (with 43 participants in 2017), placements, coaching, and learning from experience through mentoring.

We deliver a wide range of targeted training and development. In FY2017, 5,900 people completed Certificates II, III or IV, diploma qualifications, units of competency, and tailored learning solutions through our Skilled for Action training modules in areas like sales and marketing, surface extraction, laboratory skills, driving operations, and work health and safety. Also in FY2017, 54 finance professionals completed the next phase of the Creating Value Through Finance program developed in partnership with AGSM.

## WOMEN IN ENGINEERING SCHOLARSHIPS

Established in 2016, the University of New South Wales Boral Women in Engineering scholarship and industrial experience program offers financial support, work experience and mentoring by senior operational leaders to women studying engineering. The 2017 scholarship recipients were Olga Bida studying Chemical Engineering and Petra Quartullo studying Civil Engineering.



(From left) Boral Cement's Domenic Saffiotti, students Olga Bida and Petra Quartullo, and Boral Quarries' David Bolton

# HEALTH, SAFETY & ENVIRONMENTAL MANAGEMENT



Boral's people Take Five for Safety to identify hazards and risks before they start work

## ZERO HARM TODAY

Across Boral, our overarching goal is to achieve Zero Harm Today. We are working on this by eliminating behaviour and conditions that have potential to injure our people and harm the environment.

We are committed to our goal of Zero Harm and work to eliminate adverse environmental impacts. Where elimination is not possible, we seek to minimise any harmful effects from our operations, which means that we target performance that is often better than environmental laws require.

### OUR APPROACH

Managing health, safety and environment (HSE) is an integral part of the day-to-day activities of Boral's line managers. They are supported by a network of HSE professionals in Boral's divisions and a small corporate team headed by Boral's Group HSE Director.

The corporate team has responsibility for policy, governance and functional leadership, in consultation with divisional specialists and leadership. Each of Boral's divisions has responsibility for leading the implementation of their respective programs and providing expert coaching to line managers. Divisions have their own HSE strategies and plans, consistent with and complementary to Boral's Group HSE strategy.

Divisional management teams and the corporate HSE function provide formal reports on performance, risks and management actions to the Board's HSE Committee on a quarterly basis and to Boral's Executive Committee on a monthly basis.



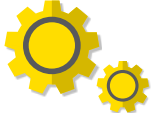

During FY2017, Boral Australia established a divisional Executive HSE Committee, chaired by Boral Australia's CEO, with membership drawn from operational leadership and supported by the divisional HSE team. This committee assists Boral Australia's leadership team to fulfill its oversight of divisional strategies, systems, policies and practices in respect of HSE matters.

At a site level, safety performance and actions are discussed in various forums including daily pre-start meetings and at many sites, monthly HSE Committee meetings. More serious HSE incidents, including near miss events, are directly communicated to Boral's CEO & Managing Director and incident review meetings are held for serious near miss events, involving local line management, relevant divisional executives and the Group HSE Director. Reviews of serious incidents are also held at a divisional executive level.

Our HSE reporting framework and systems, in conjunction with a culture of transparent reporting, ensure that reliable HSE information is provided to both our internal and external stakeholders.

## HSE STRATEGY AND PERFORMANCE

Following a review in FY2017, Boral's Group strategy for HSE has been simplified to four strategic objectives and 14 contributing programs. Across Boral's three divisions – Boral Australia, USG Boral and Boral North America – HSE strategies are consistent with Boral's Group strategy for HSE. Here is a summary of progress against our HSE objectives.

<b>OBJECTIVE 1</b>  <b>Capable &amp; Confident Leaders</b> <b>PROGRAMS</b>	<b>OBJECTIVE 2</b>  <b>Engaged, Empowered &amp; Competent Workforce</b> <b>PROGRAMS</b>	<b>OBJECTIVE 3</b>  <b>Fit-for-purpose HSEQ Systems &amp; Processes</b> <b>PROGRAMS</b>	<b>OBJECTIVE 4</b>  <b>Maintaining our License to Operate &amp; Grow</b> <b>PROGRAMS</b>
<ul style="list-style-type: none"> <li>Leading Zero Harm Today</li> </ul>	<ul style="list-style-type: none"> <li>Operationalising HSE</li> <li>Fitness for work &amp; life</li> <li>Contractor safety &amp; engagement</li> </ul>	<ul style="list-style-type: none"> <li>Serious harm prevention</li> <li>Knowledge &amp; sharing</li> <li>Reporting &amp; information</li> <li>Self-insurance</li> <li>Personal &amp; property security</li> </ul>	<ul style="list-style-type: none"> <li>Healthy workplaces</li> <li>Driver safety</li> <li>Regulatory &amp; stakeholder engagement</li> <li>Climate change adaptation &amp; resilience</li> <li>Environmental compliance</li> </ul>
<b>PROGRESS</b> <ul style="list-style-type: none"> <li>Zero Harm Today well embedded in the business, with high levels of support and cascading sponsorship from business leaders</li> <li>Group-wide Safety Climate Survey underway, for completion early FY2018, to provide frontline teams with information on their own team culture to inform improvement plans</li> </ul>	<ul style="list-style-type: none"> <li>Continued roll-out of SafeStart and allied human error reduction behavioural programs across Boral Australia and USG Boral</li> <li>Improved suite of HSE training material, focusing on operational responsibilities and induction, deployed through My Learning Space in Boral Australia first</li> <li>Boral Australia's Boral Production System (LEAN) refreshed to align with HSEQ Management System</li> <li>"Safety Absolutes" (key rules) reviewed and relaunched in Australia, and available globally</li> <li>Review of Safe Systems of Work process, clarifying use of processes and tools</li> <li>USG Boral's "Upset Conditions" program deployed</li> <li>USG Boral "Safety Engagement" program in place – senior executives visit sites and meet all personnel individually to hear about the site's safety</li> <li>New Drug &amp; Alcohol Policy and Fitness for Work standard released, addressing pre-placement medicals, fatigue and drug &amp; alcohol management</li> <li>Phase 1 of Supplier Safety program with pre-qualification process through BROWZ in Boral Australia. Broader supplier safety strategy also established</li> </ul>	<ul style="list-style-type: none"> <li>Through membership of the Global Serious Injury and Fatality (SIF) Group, participated in annual workshop on global SIF research project, providing valuable benchmarking of large organisations with diverse and complex risk profiles</li> <li>Ongoing reviews of critical controls, linked to Safe Systems of Work review</li> <li>Early work to improve productivity tools and content management systems, to establish a superior "HSEQ knowledge warehouse"</li> <li>Working with a research partner to improve information from our incident database to further focus preventative strategies</li> <li>Self-insurance options reviewed, with decision to apply for self-insurance in NSW and supported by an upgrade of our case management system in Australia</li> <li>Travel security services upgraded</li> <li>Physical security review completed and standards established – piloting in Australian quarries</li> </ul>	<ul style="list-style-type: none"> <li>Tobacco smoke-free trial site underway</li> <li>Upgraded occupational hygiene program now broadly implemented in Australia, and Occupational Safety and Health Administration-compliant US program</li> <li>Comprehensive heavy vehicle safety program, with agitator roll-over avoidance program receiving industry recognition</li> <li>Building on Boral Australia's award-winning stakeholder engagement program, and demonstrating a leadership position within industry associations</li> <li>Beyond our energy efficiency programs, commenced a Group-wide strategic review to assess the climate-related risks and opportunities facing our businesses, with the outcomes expected to guide the evolution of our business strategies</li> <li>Further roll-out of environmental compliance audits across Boral Australia, including development of Permit Planner to assist operations meet compliance requirements. Process shared with other divisions</li> </ul>

## OUR HSEQ MANAGEMENT SYSTEM

Boral continued the implementation of its revised Health, Safety, Environment and Quality Management System (HSEQ MS) in FY2017 which integrated a number of previously separate management systems. The HSEQ MS is a Group-level system which clarifies and targets the responsibilities and actions needed to deliver improved performance and strong governance. It has enhanced our capacity to certify our operations to external standards. Boral's asphalt businesses are ISO 14001 (Environment) certified, incorporating 25 certified locations across several states. We have 38 sites with AS/NZS 4801 (Safety) certification and 386 sites with ISO 9001 (Quality) certification.

# HEALTH & SAFETY



Sarah Fortenberry and Denise Soto at the Boral Discovery Center in San Antonio, Texas, USA

## IS ZERO HARM POSSIBLE?

**Zero Harm is not a long-term ambition – it's a goal for today. We want our people to be safe right now. We do not want our people to wait to find a safer way to do things at some time in the future.**

We know through experience that all tasks can be done without causing injury, with the right equipment, process and behaviours. Therefore, Zero Harm Today, and every day, is achievable and that's what we strive for.

Consistent with this philosophy, we have introduced a new safety measure in Boral called "Zero Harm Days". On average, our people work over 480,000 days every month free of any injury – a reminder that injuries are preventable.

That said, we also know the conditions that could cause an injury in the future are present in our workplaces and generally already known to us – hence the need for ongoing vigilance remains.

## TRAINING OUR PEOPLE

Safety training is provided for all Boral workers through a number of means including internal leadership courses, and frontline manager, supervisor and operator level training. Training ranges from inductions, safe work practice and safety leadership through to behavioural-based programs.

SafeStart is a behavioural program designed to help our people identify triggers that can lead to human error and unsafe actions. It has been widely adopted throughout Boral Australia and Boral Corporate.

Boral is a registered training organisation in Australia and offers vocational courses, including safety and LEAN-related courses, at the Certificate II, III, IV and Diploma levels.

Boral's learning management system called "My Learning Space" is now in use, helping our people manage their own learning and competency requirements and helping our managers to monitor this as a leading safety measure.

## HEALTH & WELLBEING

Beyond our immediate goal of Zero Harm, we are also focused on maintaining the health and wellbeing of our people for the longer term.

To support this, Boral's businesses offer a range of programs and services including occupational hygiene programs, health & fitness checks, drug & alcohol support, quit smoking programs, a confidential counseling service and health seminars.

For example, our New South Wales employees have been undertaking Boral's "Stop for Safety" day, focusing on mental health training and support initiatives. More than 90 Boral people have been

trained to deliver the mental health initiatives with support from not-for-profit organisations Beyond Blue, Mates in Mining, Trans-Help Foundation and the Hunter Institute for Mental Health.



Mental health training materials as part of Boral Australia's "Stop for Safety" pilot program

## HEALTH & SAFETY OUTCOMES

Boral's safety performance continued to improve in FY2017 on a recordable injury basis. The recordable injury frequency rate (RIFR<sup>1</sup>) of 8.1 was an 8% improvement on FY2016, contributing to a long-term improvement of 62% since FY2011.

With zero fatalities in FY2017 and no fatalities reported since December 2013, this is the longest fatality-free period recorded, which we are working hard to maintain.

Boral's lost time injury frequency rate (LTIFR<sup>1</sup>) of 1.5 was slightly higher than the prior year at 1.3; however, it remained lower than our longer-term performance. In three of the last seven quarter-year periods, we achieved a LTIFR of one or less – a milestone recognised as leading global practice in many industries. For the fourth quarter of FY2017, we recorded our lowest RIFR on record at 7.3.

Boral North America and USG Boral both reported FY2017 LTIFR below one, at 0.3 and 0.8, respectively, considered by many to be a threshold into world best practice. US LTIFR performance excluding the Meridian Brick joint venture was 0.2. For the first time, we celebrated a full calendar year in the USA without a lost time injury in 2016.

Our reported LTIFR, RIFR and fatalities are for employees and contractors combined, which we believe is a true measure of performance. This can, however, make benchmarking challenging as not all organisations report contractor data.

Percentage hours lost<sup>2</sup> and hours away on restricted or transferred (HART) duties<sup>2</sup> were 0.04% and 0.22%, respectively, in FY2017. Percentage hours lost was broadly steady on the prior year. Given that there were more employee lost time injuries in FY2017, this suggests that injuries were generally less severe or responded better

### RECORDABLE INJURY FREQUENCY RATE<sup>1</sup>



### LOST TIME INJURY FREQUENCY RATE<sup>1</sup>



### FATALITIES

**ZERO**

EMPLOYEE OR CONTRACTOR FATALITIES SINCE 2013

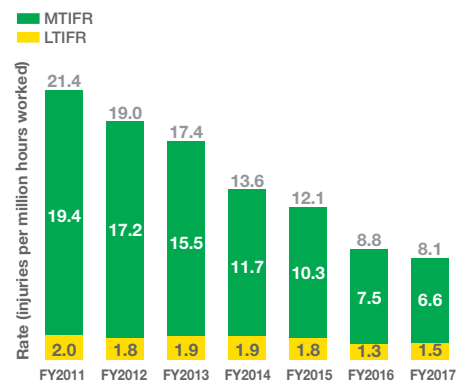
to treatment and return to work programs – a positive outcome for our injured people and, in turn, the organisation. The increase in HART (from 0.16% in FY2016) primarily reflects maturing reporting systems in our joint ventures.

For divisional RIFR, in FY2017:

- Boral Australia achieved a much improved 11.2 RIFR, with further comments on improvements on page 13.
- Boral North America reported a 6.7 RIFR, with the increase due to previously non-Boral operations now part of the Meridian Brick joint venture, formed in November 2016. Safety results of the newly acquired Headwaters business will be consolidated from FY2018.
- USG Boral reported a RIFR of 3.6, with slightly more injuries reported in the first half of FY2017 compared with the same period last year. Analysis showed that the injuries occurred when responding to operational disruptions, such as clearing

blockages or cleaning. In response, a comprehensive training and awareness program called "Upset Conditions" has been developed and implemented, which is already delivering positive results (see page 17 for details).

### Boral Group Recordable Injury Frequency Rate (RIFR<sup>1,3</sup>)



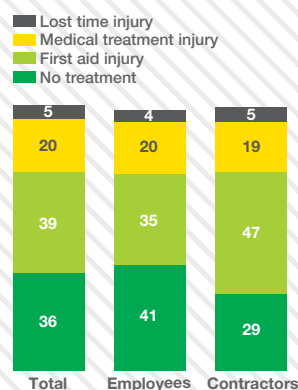
### Recordable Injury Frequency Rates (RIFR<sup>1</sup>)

	FY2017	FY2016	CHANGE
Boral Australia	11.2	13.1	↓ 15%
USG Boral	3.6	3.0	↑ 18%
Boral North America	6.7	5.2	↑ 28%
Corporate	0	0	-
<b>Boral total</b>	<b>8.1</b>	<b>8.8</b>	<b>↓ 8%</b>

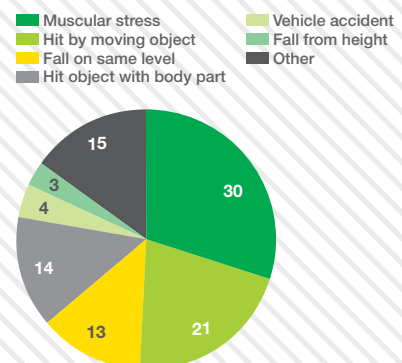
## INJURY ANALYSIS

Injury analysis assists in the development of corrective action plans, training and process redesign.

### Injury<sup>4</sup> treatment (%)



### Mechanism of injury<sup>4</sup> (%)



1. Includes injuries per million hours worked for employees and contractors in fully owned businesses and joint venture interests of 50% or more, irrespective of management control.  
 2. Defined as a percentage of total hours worked for employees only.  
 3. RIFR is made up of lost time injury frequency rate (LTIFR) and medical treatment injury frequency rate (MTIFR).  
 4. Boral Australia reported injuries in FY2017.

# HEALTH & SAFETY CONTINUED



Heavy vehicles at Boral Australia's Prestons, NSW depot. Photography by James Lauritz.

## BENCHMARKING GLOBALLY TO PREVENT INJURIES

Boral has joined a global research project conducted by DEKRA Insight, a leading global safety consultancy and research centre, where like-minded companies with complex risk profiles, including Chevron, Exxon Mobil, PepsiCo and the Linde Group, share experiences and benchmark data to improve strategies to identify and prevent incidents that can cause serious injuries and fatalities.

Through this project we found the majority of Boral's reported serious harm events were near miss events that do not result in loss but have the potential to do so had only one circumstance changed (e.g. proximity of a person).

This study is informing Boral's Serious Harm Prevention program, initiated in FY2015, which is helping us identify and eliminate events that do, or have potential to, cause fatalities or life-threatening and life-changing injuries.

The research project also highlighted a correlation in Boral's decreasing trend in RIFR, LTIFR<sup>2</sup> and serious harm incident rates in Australia, indicating that concentrating on managing serious harm precursors – conditions that could lead to a serious harm event if not well controlled – should lead to a concurrent reduction in RIFR.

## OUTPERFORMING AUSTRALIAN INDUSTRY SAFETY BENCHMARKS

The broader industries in which Boral operates in Australia experience lost time injuries up to seven times more frequently than Boral's employees and contractors.

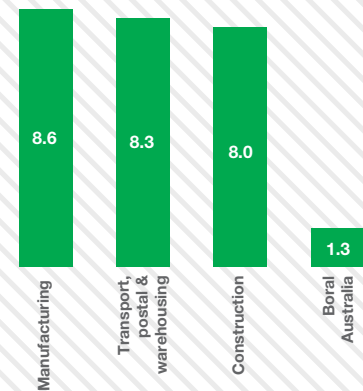
In Australia, we pour concrete and lay asphalt across major projects and construction sites; we have around 90 quarries and more than 300 manufacturing operations producing cement, concrete, asphalt, bricks, roof tiles and timber products; and manage a fleet of over 2,800 heavy vehicles.

Boral's safety performance is therefore most accurately benchmarked against the transport, construction and manufacturing sectors.

Safe Work Australia's latest injury statistics reports the average lost time injury rate across transport, construction

and manufacturing industries range from 8.0 to 8.6 injuries for every million hours worked, drawn from worker's compensation data<sup>1</sup>. This compares with Boral's FY2017 injury rate in Australia for employees and contractors combined, measured on the same basis, of 1.3.

### Boral Australia's LTIFR relative to Australian industry averages<sup>1</sup>



## WORKING HARD TO REMAIN FATALITY FREE

We are not complacent about the fact that Boral's workplaces have been fatality free for close to four years.

The last fatality in Boral was in December 2013 when a contractor driver was killed in a road accident in country Victoria, Australia. The last employee fatality was in Indonesia in November 2008 when an employee was fatally injured in a heavy vehicle accident involving a concrete agitator. The last employee fatality in Australia was in December 2007 involving a truck roll-over in South Australia.

Over the past decade from FY2008 to FY2017, Boral has reported six employee or contractor fatalities: two in Asia and four in Australia. Five of these were transport-related fatalities, four of which were contractor drivers in vehicle-related accidents. This is a stark reminder of the transport-related risks we face and manage.

1. Safe Work Australia, Australian Workers' Compensation Statistics, 2014-15, revised July 2017. Based on Safe Work Australia's definition of LTIFR based on workers' compensation claims for injuries that resulted in 5 or more days of lost time from work. Boral Australia LTIFR of 1.3 calculated on the same basis.
2. Recordable injury frequency rate and lost time injury frequency rate. Injuries per million hours worked.
3. For Headwaters employees only.
4. For employees and contractors, including Meridian Brick joint venture.
5. Safe Work Australia, 2016, Work-related Traumatic Injury Fatalities.

## SAFETY AT HEADWATERS

In May 2017, Boral completed its acquisition of Headwaters Inc in the USA. With over 4,000 employees working across 170 operating sites, Headwaters' workplaces and operations have similar risk profiles to Boral's.

Prior to integration, a pulse survey showed that employees from both organisations were proud of what they were achieving in safety, and they did not want the acquisition to adversely affect their safety performance.

The two organisations are well aligned culturally, delivering improved safety outcomes in recent years, albeit Headwaters started its safety journey a little after Boral.

Headwaters reported RIFR of 14.6 and LTIFR of 3.9 for FY2017<sup>2,3</sup>. This compares with RIFR of 6.7 and LTIFR of 0.3 for Boral USA in FY2017<sup>2,4</sup>.

Safety is at the forefront of integration activities, with leading practices being shared between Headwaters' and Boral's US operations, helping Boral's expanded North American business to meet our high safety standards and deliver Zero Harm Today.

Headwaters staff at the concrete block plant in San Antonio, Texas



## MANAGING OUR HEAVY VEHICLE ROAD TRANSPORT RISKS

While Boral's safety performance is much better than the national average LTIFR of 8.3 for the transport industry, we know that one in three workplace deaths in Australia involves a transport worker, and two in three worker fatalities involve a vehicle<sup>5</sup>.

These tragic statistics underline the need for all transport fleet operators, including Boral, to continue to reduce risks. To support this imperative we have a comprehensive program that meets our obligations under Australian Chain of Responsibility law, and we undertake a range of activities including:

- in-vehicle technologies, such as cameras and GPS, to help drivers and to monitor vehicle speeds, load and fatigue levels
- vehicle collision tracking as part of HSE reporting
- working with heavy vehicle manufacturers and suppliers, regulators, contractors and industry groups to innovate, share knowledge and implement the safest standards
- industry recognition for innovative design changes in our concrete agitator fleet
- innovative safety features in our tipper trucks, including tipper bin liners and tailgate indicators
- global benchmarking to design the safest asphalt pavers that minimise reversing and tipping angles

- SafeStart training to help our drivers identify behavioural triggers that contribute to critical errors and unsafe behaviour
- a 2017 self-directed internal review of Boral Australia's traffic management plans, with improvements implemented.

In February 2017, Boral Australia hosted a Joint Traffic Taskforce industry engagement day at our Prestons facility in Sydney, NSW. Police and Roads and Maritime Services (RMS) officers were taken through Boral's driver training and induction compliance systems, telematics, heavy vehicle maintenance, sub-contractor management, and records management.

## USING LEAD INDICATORS TO AVOID INCIDENTS

Our divisions are increasingly adopting leading measures of safety performance, including training, behavioural and procedural observations, and corrective and preventative actions, to monitor the progress of their HSE strategies.

As an example, Boral North America has been reporting the number of safety observations since 2001. In FY2017, the division recorded 26,275 safety observations, a slight increase from 24,826 in the prior year. Safety observations are an indication of the cultural focus and priority given to safety and can be readily reported by employees through a smart phone app.

While leading indicators are more difficult to routinely monitor at a Group level, as they require uniform data management systems and consistent definitions, we have achieved this level of consistency with hazard reporting, where we have seen a pleasing increase across the Group in FY2017.

**“It is pleasing to see the commitment to compliance and safety that Boral has in support of road safety.”**

ASSISTANT COMMISSIONER MICHAEL CORBOY, NSW TRAFFIC & HIGHWAY PATROL COMMAND



Assistant Commissioner Michael Corboy, RMS General Manager Compliance Operations Paul Endycott and Boral Australia's General Manager Supply Chain Victoria Sherwood at Boral's transport depot at Prestons, NSW

# ENVIRONMENTAL COMPLIANCE & PERFORMANCE



Boral Australia employees at the Mount Bunday quarry near Darwin, Northern Territory

**It is Boral's policy to comply with environmental legislation, regulations, standards and codes of practice relevant to the particular business as the absolute minimum requirement in each of the communities in which we operate.**

We recognise that compliance with our site-based planning approvals and effective management of sensitive sites is critical to our reputation and our ability to operate.

We are committed: to reducing greenhouse gas emissions from our operations, the efficient use of energy, conservation of water, minimising and recycling waste materials and energy, prevention of pollution, and effective use of virgin and recovered resources and supplemental materials.

We are also committed to open, constructive engagement with communities surrounding our operations, and protecting biodiversity values at and around our facilities.

## ENVIRONMENTAL COMPLIANCE

We are focused on improving our environmental performance, including targeting zero environmental infringements, across our ~700 operating sites globally.

We have strengthened our internal controls to improve compliance with increasingly stringent regulatory requirements in Australia, including through an online information management system for environmental licence conditions. In FY2017, we conducted 85 environmental compliance audits in Australia and developed 105 site action plans, mapping licence and planning compliance requirements.

Formal regulatory notifications are reviewed by our internal legal and HSE functions and reported to Boral's Executive Committee. Any material issues are reported and discussed at Board Committee level, even if no penalty results.

In FY2017, Boral was charged with seven regulatory infringements related to environmental contraventions in Australia and one penalty in relation to Boral's Cosgrove Quarry in Victoria. A further two fines relating to Headwaters facilities in the USA, which arose before completion of the acquisition, were levied under Boral's ownership. The infringements, which resulted in total fines of \$111,083, relate to:

- a turbid water discharge at Petrie Quarry, Queensland
- two planning condition breaches at Widemere, NSW, recycling operations
- a late payment for a mining permission at Berrima, NSW, cement works
- several breaches of air emission licence conditions in NSW and Queensland, and
- in Headwaters, a fugitive dust release at the North Las Vegas, Nevada, fly ash terminal and fines relating to permits at the roofing plant in Oceanside, California.

Infringements & Penalties	FY2017	FY2016	FY2015	FY2014
Number	10	9	3	15
Fines <sup>1</sup>	\$111,083	\$33,888	\$11,658	\$26,849
Penalties <sup>1</sup>	\$30,000	\$250,000	\$0	\$12,000
Undertakings	\$133,556	\$0	\$0	\$100,000 <sup>2</sup>

1. Fines are directly issued by the regulator and penalties by a court hearing.

2. Financial support for a local conservation project at the Yalanbee Nature Reserve, WA.

In 2016, Environment Protection Authority (EPA) Victoria commenced proceedings against Boral on three counts related to accepting concrete material at our Cosgrove Quarry. The material had been received for processing and recycling into construction materials; however, the EPA deemed this to be the storage of industrial waste without a licence. Boral agreed to plead guilty to one of the three counts, and was fined \$30,000.

In November 2016, Boral accepted an enforceable undertaking committing to training, auditing, industry education, and royalties and levies, totalling \$133,556. This followed a NSW Department of Industry determination that Boral Bricks Pty Ltd had breached the Mining Act 1992 at two clay pits in southern NSW.

In addition to the penalty and infringements at Boral's fully-owned operations, in May 2016 there were two regulatory infringements at USG Boral plants in Pudong and Baoshan in China. The penalties accepted by USG Boral in late 2016 were US\$3,800 and US\$51,000, respectively. These types of infringements in China also restrict the business from claiming Value-added Tax (VAT) rebates for three years.



**BIODIVERSITY MANAGEMENT**

Protecting biodiversity – the diversity of plant and animal species – at our operational sites is a core component of our land management.

Initiatives to protect biodiversity at our own sites and more broadly include:

- maintaining and inspecting bat boxes at Dunmore Quarry in NSW for a number of threatened species
- the ongoing supply of koala fodder from plantations at Narangba and Petrie quarries in Queensland
- tracking and conservation work to protect the legless lizard at Deer Park Quarry in Victoria, and
- supporting the Western Swamp tortoise recovery program through Midland Brick’s work with Perth Zoo.

Our long-standing community partnerships with Conservation Volunteers Australia and Taronga Conservation Society are aimed at biodiversity, conservation and education, in our local communities and more broadly.

**WASTE, RECYCLING AND RE-USE**

Throughout Boral’s operations, our own waste materials are re-used to produce the same product, including concrete washout slurry, recycled asphalt pavement (RAP), and plasterboard waste from production and building sites.

Boral’s businesses deal with only low amounts of hazardous waste and this is managed in accordance with government regulations.

Similarly, we only use relatively small amounts of packaging as the vast majority of our products are delivered in bulk. Boral businesses in Australia that do use some packaging, such as Midland Brick and USG Boral, are signatories to the Australian Packaging Covenant. Boral Cement, through its membership of Cement Concrete & Aggregates Australia, is also a signatory.



The agitator washout pit at Boral Australia’s concrete plant at St Peters, NSW

**PROTECTING THE GREENHOOD ORCHID AT CHARLTON QUARRY**

Boral is finalising arrangements to move 44 individual Robust Greenhood orchid specimens from Charlton Quarry in Victoria, ahead of quarry pit rehabilitation works. The species is classified as “Critically Endangered” by the Commonwealth Environmental Protection and Biodiversity Conservation Act 1999, as “Threatened” by the Victorian Flora and Fauna Grantee Act 1988, and as “Extinct” on the Advisory List of Rare and Threatened Plants in Victoria 2014.

We have gained approval and endorsement from Parks Victoria, local Indigenous community group Dja Dja Warrung, Bush Heritage Australia and the Department of Environment, Land, Water & Planning Loddon Mallee Region (the state regulator for flora translocation). We are also working with the Commonwealth Department of Heritage and Environment. Once approved, the proposed timing for the orchids’ translocation is September 2017.

**WATER MANAGEMENT**

Boral’s operations worldwide consume about 4 gigalitres of mainly municipal supplied water for manufacturing, dust suppression, cleaning and sanitation. We also capture unmeasured rainfall or stream flow at our larger sites, predominantly used for dust control purposes.

We have well established internal compliance systems for prevention of pollution of discharged waters, as well as numerous regulatory controls through licensing and permitting.

In recent years, we have had several penalties regarding water discharges. However, these are largely traceable to rainfall deluge events, which we are moving to better respond to as part of our approach to climate-related risks.

In 2017 we commenced reporting to CDP Water and as such, a more detailed analysis of our water risks as at FY2016 can be found in CDP’s publicly available report – see cdp.net.

While individual Boral locations may have water risk from time to time (either from too much or too little water), as a Group we do not assess Boral as having material water risk.

**PROTECTING CULTURAL HERITAGE**

We recognise and respect sites, places, structures and objects that have cultural or traditional significance. We work alongside Indigenous peoples to protect cultural heritage including:

- working with local Aboriginal representatives at Peppertree Quarry in NSW in the identification of nearly 100,000 Aboriginal artefacts, and
- relocating an Aboriginal scarred tree from Dunmore Quarry to Killalea State Park, where it was presented to the public in an official “Close the Gap” ceremony.



Some of the Aboriginal artefacts found at Boral’s Peppertree Quarry in Marulan, NSW

**“We recognise that compliance with our site-based planning approvals and effective management of sensitive sites is critical to our reputation and our ability to operate.”**

MICHAEL WILSON  
GROUP HSE DIRECTOR  
BORAL LIMITED

# ENERGY & EMISSIONS

## GREENHOUSE GAS EMISSIONS

For many years, Boral has been focused on reducing greenhouse gas (GHG) emissions from our processes and facilities, and committed to the efficient use of energy, including re-use of waste energy and the use of waste materials as alternate fuels.

For the past five years, our business strategy has been to move away from energy-intensive manufacturing, such as kiln-fired clay bricks, to lightweight, more sustainable products, such as cultured stone, fly ash-based composite products and gypsum wallboard technologies. We have exited higher cost, sub-scale, less efficient cement kilns in Australia and increased imported clinker produced in more modern, larger scale, less carbon emissions-intensive kilns in Asia.

**Boral's absolute emissions<sup>1</sup> (Scope 1 and 2) have reduced by ~29% over the past five years to 2.50 million tonnes of carbon dioxide equivalent (CO<sub>2</sub>-e) in FY2017, even while market activity – and Boral's profitability – in Australia, North America and Asia has been increasing.**

The reduction in Boral's absolute GHG emissions reflects a combination of plant closures, divestments, production efficiencies, alternate fuel use, and the shift to imported clinker (which accounts for ~13% of the 29% reduction in emissions since FY2012).

In FY2017, Boral's GHG emissions were up 2% compared to the prior year, with emissions from Boral's Australian operations broadly unchanged, North America up 9% and Asia up 5%.

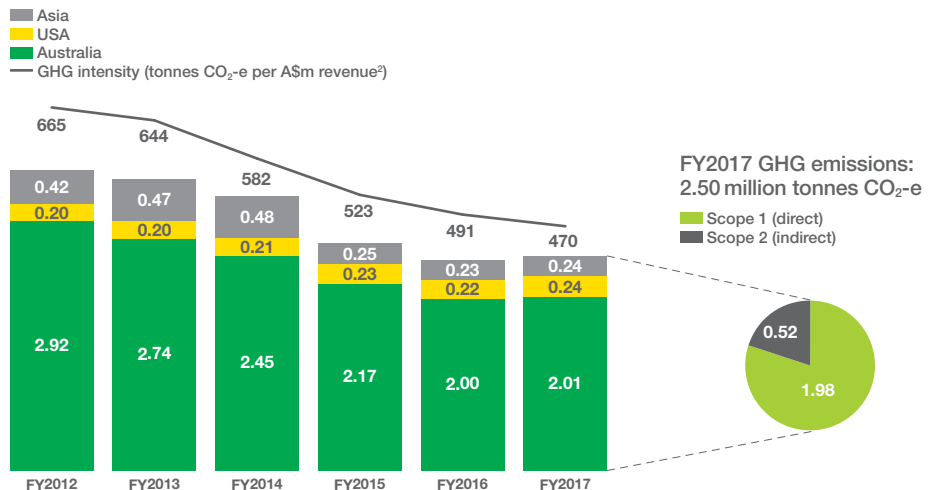
Changes in Boral's portfolio during FY2017 materially altered GHG emissions, with the formation of the Meridian Brick joint venture underpinning increased emissions in North America. In Australia, lower emissions associated with decreased production at Midland Brick in Western Australia were offset by higher east coast construction

activity and the impact of increased clinker production at Berrima. Increased plasterboard production in USG Boral resulted in higher emissions in Asia.

The Cement business in Australia accounted for approximately 60% of Boral's total emissions in FY2017, and about 75% of emissions in Australia.

**Boral's emissions intensity of approximately 470 tonnes of CO<sub>2</sub>-e per million dollars of revenue<sup>2</sup> (in AUD) in FY2017 was 29% lower than it was five years ago and improved 4% year-on-year, reflecting actual efficiency gains.**

## GHG emissions from operations<sup>1</sup> (million tonnes CO<sub>2</sub>-e)



1. Data provided for FY2017 GHG emissions, energy consumption and costs is for Boral's 100%-owned operations and Boral's share of emissions and energy consumption from 50%-owned joint venture operations. Does not include Headwaters.
2. Revenue adjusted to include 50% share of underlying revenues from USG Boral and Meridian Brick joint ventures, which are not included in Group reported revenue.

## ENERGY CONSUMPTION AND IMPROVEMENT INITIATIVES

Boral's operations consumed 20 petajoules of energy in FY2017, up 2% on the prior year, reflecting increased production volumes plus the formation of the Meridian Brick joint venture. Across all divisions, a total of around A\$295 million was spent on energy – gas, electricity, coal, diesel and other fuels – in FY2017.

Boral's businesses continue to focus on energy and emissions reduction initiatives, including through LEAN management principles, plant efficiency projects and fuels programs, as well as a continuation of our strategy to move away from energy-

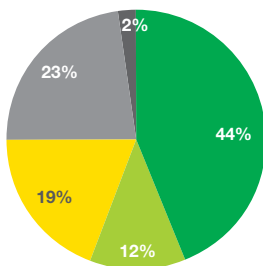
intensive operations into lighter-weight products.

Emissions and energy consumption associated with the acquisition of Headwaters, completed in May 2017, will be reported from FY2018 and is expected to result in a further improvement in Boral's emissions intensity.

In addition, the Berrima cement works alternative fuels program, developed to lower local manufacturing costs and emissions, will be operational in 2018.

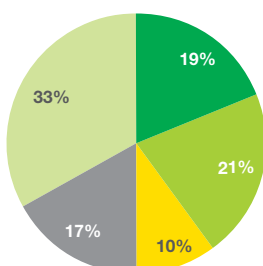
### Energy by fuel source<sup>1</sup>

- Natural gas
- Electricity
- Diesel & liquid fuels
- Coal
- Biofuels



### GHG emissions by source<sup>1</sup>

- Natural gas
- Electricity
- Diesel & liquid fuels
- Coal
- Calcination



### Energy consumed and cost<sup>1</sup> in FY2017

**12PJ**  
~A\$197m  
BORAL AUSTRALIA

**4PJ**  
~US\$47m  
USG BORAL

**4PJ**  
~US\$28m  
BORAL NORTH AMERICA

# COMMUNITY IMPACTS

**We are committed to being a socially responsible member of the communities in which we operate.**

We recognise that we need to meet local stakeholders' expectations by:

- proactively engaging with the community to deliver back to the community more than just jobs, and
- managing site operations so they do not negatively impact on community amenity.

Operational issues that can impact local communities include traffic, noise, dust, odours, water, waste, quarry end use, and impacts on heritage and culture.

Our approach is to engage with stakeholders and plan strategically to mitigate and manage impacts across the full life cycle of our extraction and processing sites. Our quarries and other land assets are managed responsibly, taking a whole-of-life approach from development approvals through to rehabilitation and end-use planning and development.

## COMMUNITY ENGAGEMENT

Addressing potential community concerns is an important part of Boral's community engagement efforts. Our stakeholder engagement programs are underpinned by communications, consultation and contribution.

Community Consultation Committees are established at key sites, and we communicate through online information resources as well as other channels, such as mail drops, advertising, and community inspections and guided site tours like those held at our Alstonville, NSW, asphalt site in November 2016 and Orange Grove Quarry, WA, in May 2017. These site tours help generate better community understanding and provide opportunities for engagement with those who live and work around Boral sites. They also allow Boral to gather feedback about operational performance and site impacts.

Boral is an acknowledged industry leader in community engagement and was awarded the Community Leadership Award at the Victorian Cement Concrete & Aggregates Australia 2016 Environment, Health and Safety Awards. Boral was recognised for our innovative Stakeholder Perception Benchmarking process, which uses feedback from local residents to guide community relations planning activities at operational sites.



Local residents attend Boral's Orange Grove Quarry, WA, open day

## COMMUNITY SUPPORT PROGRAMS

Boral works with a number of community organisations and projects where there is a connection with our people, places and products.

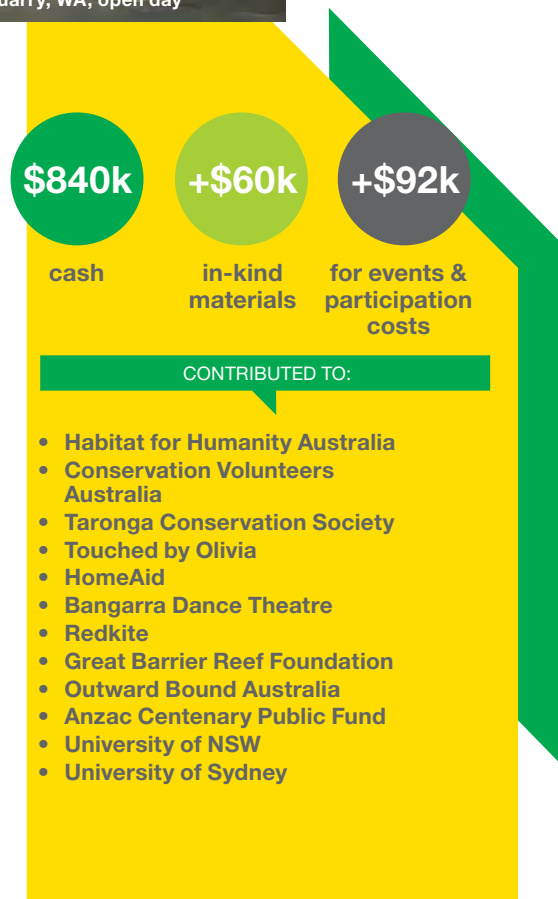
In FY2017, Boral contributed approximately \$840,000 of financial support through 12 corporate community partnerships and other community support initiatives.

We also provided approximately \$60,000 of in-kind materials to community partners Habitat for Humanity Australia, Touched by Olivia and Conservation Volunteers Australia (CVA). A further \$92,000 was contributed to fundraising and events, like Habitat's Rock the House build in October 2016 where Boral supported 24 employees to help build homes for a disaster-prone community in rural Indonesia.

Many of these programs connect with our local communities. For example, Boral partners with CVA to deliver our Connected Communities program, which aims to educate and inspire students to take action for the future. In FY2017, 23 schools and communities close to Boral's operations across Australia received financial assistance and 34 days of volunteer support to carry out local biodiversity projects.

Boral's businesses and employees are actively involved in these corporate programs and they also support targeted local activities, including emergency services and local community and environmental initiatives.

More information about Boral's community support programs can be found at [boral.com/community\\_support](http://boral.com/community_support)



# MANAGING CLIMATE-RELATED IMPACTS



The stormwater management system at Ormeau Quarry, near Gold Coast, Queensland, has improved the site's resilience to extreme rain events

As part of our objective to monitor megatrends and position the business to respond to them, in 2017 Boral undertook a Climate-related Risks and Opportunities Strategic Review across all businesses. We used the recommended framework set out by the international Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD).

We considered the specific areas we need to target for the coming 10–20 years to maintain Boral's sustainability in a carbon-constrained world, broadly based on a default 2°C scenario supplemented with self-developed scenarios. The outcomes of this review are being used to update Boral's strategies and plans. In FY2018, we will consider the TCFD recommendations for modelling and measuring the financial impacts of these risks and opportunities and the use of more formalised scenario analysis.

**Here are some of Boral's climate-related risks and opportunities:**

## RISKS

### TRANSITION RISKS

- **Increasing energy costs adding to the cost of production.** At a Group level, this is not a material risk given our strategy to reduce the energy intensity of our operations and given Boral's energy costs in Australia, for example, represent only ~8% of our cost base, including gas, electricity, diesel and coal. However, where energy costs are higher – in our Cement business and in Asia – we have programs in place to continue to reduce our exposures. In Cement we are substituting more than 75,000 tonnes of emissions from fossil fuels through the use of alternative fuels. In USG Boral the introduction of next generation Sheetrock® is expected to result in 25% less water in manufacturing and 20% lower CO<sub>2</sub>-e emissions as energy requirements for drying the plasterboard reduces.
- **Potential reduction in fly ash in North America as coal-fired power utilities curtail over time.** The US Energy Information Administration (EIA) is projecting coal to make up approximately 30% of the country's energy mix in 2040 or, if the Clean Power Plan is enacted, approximately 20%. At these levels, the amount of fly ash going to landfill should reduce but fly ash available for the construction industry should be sustained. To support Boral's growth in fly ash we plan to increase storage capacity, reducing fly ash going to landfill which is currently about 40% of fly ash produced in the USA. Longer term we are developing capabilities to reclaim fly ash already in landfill which is estimated to be about 1 billion tons, compared with fly ash used in ready mix concrete in the USA of about 16 million tons per year.
- **Changes to regulatory and disclosure requirements.** Boral has reported emissions and energy use for many years, and has been an active participant in schemes such as the Greenhouse Challenge Plus and Energy Efficiency Opportunities programs for 15–20 years. We have reported to the Carbon Disclosure Project, now CDP, for over a decade and to the federal National Greenhouse and Energy Reporting Scheme since its inception in FY2009. Boral's exposure risk to comply with additional reporting requirements is small. Similarly, the introduction of a carbon cost through regulation is a low-risk issue as Boral can readily adapt to capture and pass on costs, as we have done in the past in Australia during the Emissions Trading Scheme. Since that time, Boral's emissions have substantially reduced, having exited brick manufacturing on the east coast of Australia, ceased clinker manufacturing in Victoria and divested the landfill business.

### PHYSICAL RISKS

- **Operations' resilience to extreme weather events.** Over the past decade, as we have invested in new plant and equipment, we have included measures to better withstand floods and extreme weather. We have invested in generators to keep key plants operational in the event of storm-related power disruptions, and in pumping equipment to improve the recovery response at quarries following high rain events. With a higher risk of uncontrolled stormwater run-off during extreme rain events, we are improving our water management systems, including adopting sophisticated settlement ponds and closed loop water systems. For example, at our Stonyfell Quarry in South Australia, prompted by an extreme rainfall event in September 2016 – the highest 24-hour period on record – we significantly upgraded water management systems and capabilities, and were reminded of the importance of monitoring and upgrading site plans to better withstand extreme weather.



The kiln at Boral's Berrima Cement Works in NSW

## OPPORTUNITIES

### PRODUCTS & SERVICES

- **Harnessing product innovation capabilities to help our customers transition to a lower carbon economy.** Through Boral innovation centres in the USA, Australia and Thailand, we are increasing our investment in materials science-based product innovations, addressing the needs of our customers and responding to a changing world. For example, our patented fly ash-based polymer composite Boral TruExterior™ Siding & Trim products comprise up to 70% fly ash – a by-product that would otherwise go to landfill. Similarly, ENVISIA® concrete, developed by Boral in Australia, is a high performing concrete produced with less CO<sub>2</sub>-e emissions than standard concrete.

### ENERGY SOURCE

- **Increased use of alternative fuels in cement manufacturing.** Through an \$11.3 million alternative fuels facility at Boral's cement operations in Berrima, NSW, we will use solid waste-derived fuels and commercial waste streams to reduce Boral's coal usage and carbon footprint at the same time as reducing costs. The facility is expected to be operational in 2018.

### RESILIENCE

- **Boral Timber's use of residue by-products as biofuel.** All three of our north coast NSW timber finishing plants produce their own process heat on site. At the Murwillumbah timber mill, chipped residue is used as boiler fuel for the cogeneration plant, providing electrical power to operate the plant. Boral's timber residues are also sold to external electricity generators and large industrial users for the generation of process heat. Further opportunities have been identified to take advantage of advances in technology to help turn more by-product materials into renewable, sustainable energy sources, which is known as biofutures.

## WORKING WITH THE WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT

With Boral's Cement business in Australia accounting for approximately 60% of Boral's total greenhouse gas emissions in FY2017, finding lower carbon cement solutions is important. Through the Cement Industry Federation in Australia, Boral has been working with the World Business Council for Sustainable Development on their Cement Sustainability Initiative (CSI) since 2002.

In light of the United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement in late 2015, the CSI initiated an in-depth review of its low-carbon technology roadmap. This led to the publication of over 50 papers in March 2017 relating to thermal and electric energy efficiency; use of alternative fuels, materials and biomass; reduction of clinker content in cement; new binding materials; and CO<sub>2</sub> capture, storage and utilisation.

The CSI will release an updated technology roadmap based on these research papers at the next UNFCCC Conference at the end of 2017. This important roadmap will be used by the Australian cement industry to monitor and review pathways to reduce future CO<sub>2</sub> emissions.

**At Boral, we recognise the need to identify and respond to climate-related risks and opportunities, including the physical and transition risks and opportunities.**

# VALUE CHAIN & PRODUCT INNOVATION



Chanudom Muangchim, Researcher at USG Boral's Research and Innovation Centre in Saraburi, Thailand

**Boral is a critical part of the construction supply chain in the markets in which we operate. As we continue to find more effective ways to do business and respond to external changes and disruptions, we recognise the influential role we can and need to play in delivering sustainable solutions for our customers, suppliers and the broader community.**



Boral TruExterior® Trim, featured on this dormer, boasts more than of 70% recycled fly ash content

We are working to deliver improved outcomes throughout the value chain today and for the future. Some of the ways we are doing this include:

- **Using external waste and by-products** or secondary resources in a range of products, including fly ash for the construction industry and our lightweight composite building products in the USA, as well as crushed demolition concrete in new concrete and asphalt in Australia.
- **Working with customers to deliver Green Star energy and sustainability goals**, including developing concrete washout innovations that require significantly less water usage on customers' sites, and less carbon intensive products such as ENVISIA® concrete.
- **Responding to changing demographics, working environments and needs of our customers.** We have identified key trends our customers are facing in their industries, as well as innovative approaches to business and technology opportunities Boral can employ to improve our customers' experiences. In our Australian concrete business we have built an understanding of our customers' end-to-end experience by interviewing small and large customers, riding with our drivers and listening to call centre calls, in an effort to improve the experience for our customers.
- **Helping to develop safer, improved construction methods in Asia** by broadening our product and systems offering to provide plasterboard partitioning in residential buildings. We are also doing this through our Habitat for Humanity partnership, where we are helping educate local construction workers in safe and improved construction techniques in Vietnam, Indonesia and Cambodia.
- **Working with the supply chain to design, build and use safer, more innovative equipment.** For example, we work closely with manufacturers of on- and off-road heavy vehicles, and we have supplied DECA, a leading and respected trainer in heavy vehicle safety, with a Boral-sponsored concrete agitator for their roll-over awareness safety training.
- **Working with social enterprises**, which are businesses that aim to improve communities, tackle social problems, provide people with access to employment or help the environment. Through our pilot program in Victoria we have identified opportunities where Boral, and potentially our suppliers, can work with social enterprises, including this year's initiative at Deer Park, Victoria, where we worked with inmates from the Dame Phyllis Frost Centre to plant saplings they had grown for screening bunds around our facility.

## OUR SUPPLIERS & CUSTOMERS

Boral's suppliers and their workers must satisfy selection and pre-qualification criteria which covers mandatory criteria around safety management and ethical supply chains, including prohibiting the use of child labour.

In addition, we have a new Standard Operating Procedure for supply risk management, which requires our procurement team to consider risks related to human and labour rights infringements.

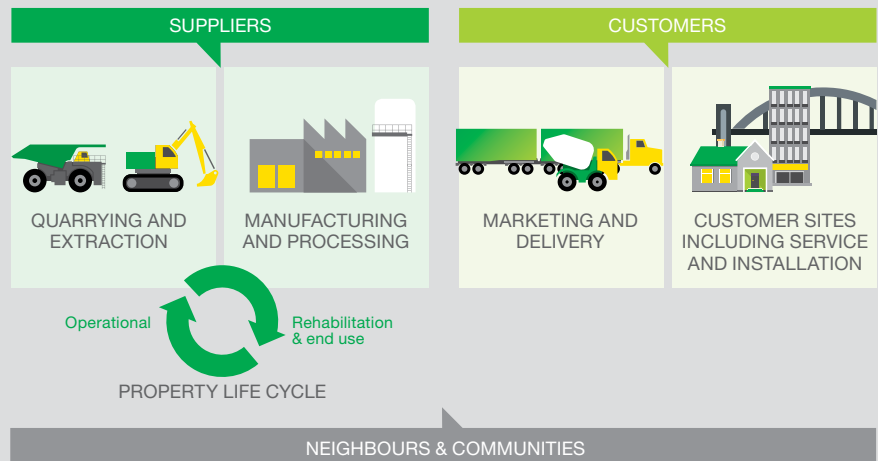
In Australia, our process is supported by a third party service to register and monitor compliance of suppliers to our pre-qualification requirements.

We expect our suppliers and contractors to work with us to meet our safety and other sustainability objectives, and we help them to meet their sustainability goals.

We also actively work with our customers to support their objectives, including maintaining high safety and environmental standards and delivering sustainable product solutions.

- **Helping to deliver more affordable housing solutions** by developing products that are lower cost and faster to install, such as light building products in the USA and lighter-weight plasterboard in Australia and Asia. We are also learning from our recently acquired Windows business in the USA which is a profitable business focused on lower-cost solutions.
- **Developing an integrated global supply chain, with local procurement, across USG Boral.** For sourcing materials like paper, gypsum and steel, this has delivered improved commercial outcomes while reducing supply risks, and sharing knowledge and information in areas such as energy, logistics, transportation and sustainability.
- **As a Corporate Member of Supply Nation in Australia, procuring goods and services from Aboriginal and Torres Strait Islander businesses.** This helps support Boral's spend on new contracts under governments' Indigenous Procurement Policies. We are also establishing Indigenous Procurement Criteria to better utilise and service Indigenous communities and Boral's businesses through our everyday procurement spending.

## Our value chain



## DEVELOPING INNOVATIVE, SUSTAINABLE BUILDING MATERIALS

Boral operates an international Innovation Factory, investing approximately \$13 million a year in research and development (R&D) facilities in the USA, Australia and Thailand. These innovation excellence centres are helping us set new standards and respond to customer needs and a changing world.

Focused on research and technology in cement, concrete and fly ash, Boral's Australian Innovation Factory in Maldon, NSW, has developed and patented lower carbon, high performance ENVISIA® concrete, which reduces carbon emissions associated with production using proprietary technology. Read about projects using ENVISIA® on page 13.

In San Antonio, Texas, where Boral's state-of-the-art Discovery Center opened in February 2016, scientists, engineers and technicians are driving Boral's North American R&D activities and disruptive innovations in building materials. The team is largely focused on fly ash-based polymer composite products that aim to deliver superior performance compared to conventional products. For recent developments see page 22.

In Thailand, at USG Boral's new R&D Centre in Saraburi the team is developing improved performance gypsum-based products and systems for interior and exterior building, including materials that have superior fire protection, energy efficiency and acoustics. For more detail see page 16.

## PRODUCT STEWARDSHIP

Boral's Product Stewardship Standard is used to manage health, safety, environmental and quality (HSEQ) risks associated with new product development and modification to existing products. Minimum mandatory requirements must be implemented, including: a documented assessment of HSEQ risks before new or modified products are released to market; implementation of appropriate systems to support adherence to Boral's product specifications and maintenance of HSE legislative requirements; and proper training of Boral's people in handling, storage and use of our products. The Standard covers Safety Data Sheets, product labeling and Safe Work Method Statements.

## SUSTAINABLE SOURCING OF TIMBER

Forestry Corporation of NSW, the manager of commercial native and plantation forests in NSW and supplier to Boral Timber, is certified to meet the Australian Forestry Standard (AFS); an independently audited forest management standard that provides assurance it is managing NSW forests in a sustainable manner. Boral Timber's hardwood products are also certified to AFS's Chain of Custody standard, further assuring customers that our products are sourced from certified, legal and sustainable resources by tracking products back to their source of supply.

Boral voluntarily responded to the 2017 CDP Forests Report exploring companies' deforestation management risks and company engagement across supply chains. Our response covered Boral Timber and paper used in manufacturing in USG Boral.

# CONNECT

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**AGM DETAILS**

The Annual General Meeting of Boral Limited will be held at the Civic Pavilion, The Concourse, Chatswood, NSW, on Thursday, 2 November 2017 at 10.30am.

