CEMENT CONCRETE
& AGGREGATES AUSTRALIA

NATIONAL EH&S AWARDS 2014

ENVIRONMENTAL INNOVATION AWARD

NOMINEES:

Boral Construction Materials & Cement
Cockburn Cement Limited
Fulton Hogan
Hallett Concrete
Hanson Construction Materials
Hazell Bros
Metromix

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HEALTH & SAFETY INNOVATION AWARD

NOMINEES:

Boral Construction Materials & Cement
Hanson Construction Materials
Holcim Australia

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WELCOME

We are again proud to bring you the CCAA Environment, Health & Safety Awards in 2014.

These Awards had their roots in NSW over 30 years ago with the first Awards recognising best practice in the pre-mixed concrete industry in the 1980's.

Today the CCAA Environment, Health & Safety Awards are annual events which are run right around the nation. They showcase to a wide range of industry stakeholders the innovative approaches taken in addressing the environmental, health and safety challenges our members face across the cement, concrete and extractive industries.

Each year they serve to demonstrate our industry's commitment to relentlessly improving its environmental performance and the health and safety outcomes for employees and the communities in which we operate. The record number of entries received this year is testament to that commitment.

Every two years the winners of the State Awards compete for just two awards for innovation, in the Environment category and in Health and Safety. As you will see in the following pages, all of the entries are strong contenders and demonstrate innovative responses to challenging issues.

The Awards recognise the outstanding contributions made by individuals, project teams and companies for the benefit of the industry and entrants deserve our thanks and congratulations for sharing these achievements for the betterment of the industry.

The Award judges deserve special thanks; they have kindly volunteered their time and expertise and taken the hard decisions in selecting winners from a high calibre field of entries.

I particularly extend my personal congratulations to the finalists and winners of the 2014 CCAA Environment, Health & Safety Awards, your contributions are greatly appreciated by your industry.

KEN SLATTERY

CHIEF EXECUTIVE OFFICER
CEMENT CONCRETE & AGGREGATES AUSTRALIA

ENVIRONMENTAL INNOVATION AWARD FINALISTS

This award recognises outstanding achievement in developing and successfully applying a new initiative or an original solution in one or more aspects of environmental management at a concrete, extractive or cement operation.

NOMINEES:

Boral Construction Materials & Cement
Cockburn Cement Limited
Fulton Hogan
Hallett Concrete
Hanson Construction Materials
Hazell Bros
Metromix

METROMIX

SELF BUNDED DANGEROUS GOODS CONTAINER MARRANGAROO QUARRY, NSW

Metromix Marrangaroo is a quartzite hard rock quarry located four kilometres west of Lithgow. The quarry has been in operation since 1912 and is situated near the Lidsdale State Forest and Marrangaroo National Park. The quarry is located within the Coxs River catchment area, which is one of the most fragile water systems within the Hawkesbury – Nepean river system.

Metromix identified that the quarry's secondary crusher's hydraulic equipment could spill oil, potentially harming the local environment. Being dedicated to preventing environmental harm, Metromix consulted with their workers who identified that dangerous goods containers could be modified to act as a self-bunded containment area, thus completely negating the risk of an oil spill impacting on the local environment.

This nomination represents a local response to a potentially harmful environmental risk which can be widely adopted across the industry.

BORAL CONSTRUCTION MATERIALS & CEMENT

ENVISIA® CONCRETE

Carbon emissions are a major environmental issue for the industry, which is usually solved by increasing fly ash and slag content. However, this can have a negative impact on the performance of the concrete.

Boral Construction Materials and Cement have developed a low carbon technology that replaces cement in concrete without compromising performance. The result is an AS-1379 compliant concrete with lower levels of embedded carbon, superior shrinkage and creep performance that behaves like conventional concrete. Additionally, there is no compromise on early strength and cycle times when compared with an equivalent form of conventional concrete.

Boral's ENVISIA Concrete provides the commercial, industrial and multi-residential markets with a low carbon, low creep and low shrinkage concrete that also reduces the volumes of steel reinforcement and concrete required in construction, which revolutionises building construction and design.

BORAL CONSTRUCTION MATERIALS & CEMENT

CONCRETE PLANT WATER TREATMENT SYSTEM EAGLE FARM, QLD

At its Eagle Farm concrete batching plant, Boral has introduced a water treatment system that effectively neutralises alkaline-contaminated run-off water by 'dosing' it with carbon dioxide gas in the first flush settling pit so that it achieves an acceptable environmental range.

The system works by drawing the alkaline water from the first flush with a pump, and injecting CO2 gas into the pipeline. When the CO2 dissolves in water it forms carbonic acid, which neutralises the alkaline water and reduces the pH, while only producing salt and water as by-products. The neutralised water is recirculated back into the opposite ends of the pits until the overall pH has returned to the neutral range.

FULTON HOGAN

HIGH EFFICIENCY SEDIMENT BASIN SYSTEM BLUE ROCK QUARRY, QLD

At its Blue Rock Quarry, Fulton Hogan has implemented a system of high efficiency sediment basins, coupled with an automatic coagulant dosing system.

The system provides a comprehensive approach to storm water management which has reduced the overall footprint of the basins by approximately 70% thereby maximising the available site for operational use.

The initiative also includes a coagulant system which is automated by use of an ultrasonic flow meter. As well, the telemetry system is linked to inflow monitoring systems for turbidity and pH.

BORAL CONSTRUCTION MATERIALS & CEMENT

NORTHERN GRASSLANDS MANAGEMENT DEER PARK QUARRY, VIC

As part of the expansion of the Deer Park Quarry, Boral reserved 95 ha of land known as the Northern Grasslands to help the conservation of the endangered Striped Legless Lizard and Plains Rice Flower.

The Grassland contains native grass communities that provide habitat for these vulnerable species. Management plans for the grassland were developed in consultation with a wide range of stakeholders, including Local and State government, local community and conservation experts.

The Northern Grasslands are actively managed, with native grass revegetation and weed control works as well as significant effort to successfully relocate Striped Legless Lizards and Plains Rice Flowers to the Northern Grasslands area.

BORAL CONSTRUCTION MATERIALS & CEMENT

PROCESS WATER MANAGEMENT SYSTEM BENDIGO, VIC

The upgrade of the Bendigo concrete batching plant water management system transformed the site that had previously inadequate infrastructure to effectively manage and recycle process water.

The new system allowed for increased water recycling, increased tank capacity, minimisation and diversion of clean rain water away from the site. This greatly reduces the risk of offsite discharge of process water with associated environmental harm and also reduces the reliance on mains water for concrete batching by recycling the process water more efficiently.

HANSON CONSTRUCTION MATERIALS

AGG FILL
BUNBURY QUARRY, WA

The Hanson Bunbury Quarry washes their coarser aggregate resulting in a waste by-product consisting of aggregate <3mm in size. Originally the product was not considered a saleable product as it was labelled 'plant waste'. It was identified that the name was probably not aiding its appeal to the market and it was re-labelled 'AggFill'.

This re-branding of a wash plant by-product resulted in it being sold to the local market as bedding and fill, thereby turning a cost into profit whilst reducing landfill and offering customers a green alternative.

COCKBURN CEMENT LIMITED

LIME KILN UPGRADE
MUNSTER, WA

Cockburn Cement Limited (CCL) operates two of the largest lime kilns in the world, located in Munster WA. The nature of lime manufacture results in the generation of fine particulate matter within the kiln, which subsequently produces particulate emissions from the kiln stacks. These particulate emissions not only impact the air quality in the region, but also impact on nearby residential areas.

The solution involved the removal of electrostatic precipitators (ESPs), older emission control technology and the installation of two state of the art baghouse filter systems, for both lime kilns 5 & 6. This system acts as a physical barrier to the exhaust stack and is designed to reduce particulate emissions from 100 to 10-20mg/Nm^3.

The innovative solution CCL implemented not only dramatically reduced particulate matter emissions it also enabled the two lime kilns to operate more efficiently. An additional aspect of this project was the removal of the old Kiln 5 stack, which has dramatically improved the community's visual amenity and the Plants impact on the skyline.

TAS / 2013

HAZELL BROS

ENDEMIC SITE REHABILITATION OF LESLIE VALE QUARRY LESLIE VALE QUARRY, TAS

Leslie Vale Quarry is a complex with a diverse mix of extraction and process activities on a forested site. Progressive rehabilitation of the worked out areas requires a consistent supply of native plants for revegetation works.

Hazell Bros set about gathering seed from locally endemic plants and propagating seedlings in a nursery created from recycled materials so that their rehabilitated land closely resembles the surrounding native forest.

An initiative to collect seed and propagate plants on the site has fostered links to the local community, provides greater flexibility in revegetation and is recreating the natural habitat.

TAS / 2014

HANSON CONSTRUCTION MATERIALS

CONTAINERISED ADDITIVE BUND DEVONPORT CONCRETE PLANT, TAS

Following a landslide at their Devonport Concrete Plant, Hanson had to replace the bund that contained the concrete additive tanks. To meet Australian Standards modern spill containment bunds must satisfy a diverse range of technical specifications.

After considering the traditional concrete enclosure and products offered in the market place, Hanson decided to modify a standard shipping container. The containerised bund protected the tanks, pumps and control equipment, kept the bund area isolated from an influx of rainwater and if necessary could be relocated with a minimum of effort.

This innovative approach to potential spill containment has applications in a broad range of industries, is affordable and can be fabricated off site allowing for a rapid change over.

HALLETT CONCRETE

ZERO WASTE CONCRETE PLANT
DRY CREEK, SA

Hallett Concrete introduced a number of initiatives at their batch plant in Dry Creek, which holistically sought to improve the environmental performance of the site. The key initiatives included:

- The installation of the 450 tonne dedicated fly ash storage facility;
- Optimization of quarry sand as a replacement for natural sand;
- A 3 million litre storage dam to capture and reuse all water used on site;
- Development of an on-site licensed recycling business, which converts waste concrete into a usable product; and
- The installation of a large scale concrete reclaimer which returns fresh excess concrete into usable raw materials.

Together, these actions have improved efficiency, reduced waste, maximised recycling and have benefited the environment, whilst also creating new business opportunities.

CCAA CONCRETE TRAINING COURSES

Training is vital in underpinning standards, providing career pathways and improving skills across the industry. CCAA is committed to providing the very best opportunities for industry education and training and we offer a range of concrete training courses that address different levels of technical proficiency to meet staff needs. Courses are held in all states across Australia.

CURRENT CONCRETE TRAINING COURSES

Concrete Basics

Understand the basics of concrete from a course delivered in one day. This provides attendees with an overview of concrete materials, the production process and applications in the building and construction industry. Concrete Basics is particularly useful for people in roles that support the specifying, supply or placing of concrete.

Concrete Practice

This four-day course provides a detailed understanding of concrete material and behaviour in relation to physical properties, production, placing and associated on-site operations such as reinforcement and potential causes of failure. Ideal for engineers, specifiers and those involved in producing, selling, transporting, testing and placing concrete.

Concrete Technology

A six-day course that will provide experienced technical staff with detailed knowledge of concrete technology and practice specific to the building and construction industry.

The course presenters are highly experienced technical staff from CCAA member companies and other industry experts, ensuring an up-to-date, practical and valuable course.

Advanced Concrete Technology

This course provides in-depth technical training in concrete technology and practice and is designed to enable experienced senior technical personnel to become technical leaders in the industry. Experts from the International and Australian construction industries, Universities and CCAA will present the lectures.

For further information and to register visit:

www.ccaa.com.au/training

HEALTH & SAFETY INNOVATION AWARD FINALISTS

This award recognises excellence in developing and implementing a solution to an identified health and safety issue.

Entries for this award may include a product solution, engineering innovation, a training program, an awareness raising activity or other risk control measures that reduce the risk of work-related injury and illness.

NOMINEES:

Boral Construction Materials & Cement
Hanson Construction Materials
Holcim Australia

BORAL CONSTRUCTION MATERIALS & CEMENT

AGITATOR WEIGHT MANAGEMENT SYSTEM

Slips, trips and falls off the ladders on the back of concrete agitator trucks are one of the major causes of injury for drivers in our industry. To improve health and safety outcomes it is necessary to remove the ladders, however, this cannot currently be done because the drivers need to look inside the barrel to estimate leftover product.

Boral has successfully developed an Agitator Weight Management System that provides accurate real-time data of the weight of the agitator barrel. This successfully eliminates the need to access the top of the barrel removing the slip, trip and fall hazard. Additionally, it removes the capacity for customers to “dispute” the amount of unused concrete.

The Agitator Weight Management System can be widely adopted across the industry to eliminate ladders on the back of agitator trucks, significantly improving health and safety outcomes.

HANSON CONSTRUCTION MATERIALS

RIPPER BOOT CHANGE-OUT STAND & WINCH HANDLING SYSTEM CENTRAL COAST SANDS QUARRY, NSW

Changing the ripper boot beneath a dozer is an extremely high risk activity, as workers must work below a raised nine tonne ripper attachment and manually change a 45 kilogram ripper boot that can be extremely hot after ripping sand for extraction.

Hanson implemented its ‘Zero Harm’ work place hazard identification process and consulted widely with its workers to develop its innovative ripper boot change-out stand and winch handling system.

The ripper stand has proven to be a vital piece of equipment as it safely supports the raised attachment eliminating the falling ripper boot hazard and the battery operated winch allows a single operator to safely handle heavy and sometimes extremely hot ripper boots with ease.

The change-out stand and winch eliminates manual handling risks and Hanson’s innovation can be applied across the wider extractive, construction and mining industries.

HOLCIM AUSTRALIA

WATER WEIGHTED SAFETY GATE ACACIA RIDGE, QLD

At its Acacia Ridge concrete batching plant, Holcim Australia has implemented a range of safety initiatives onsite including the installation of a water weighted safety gate.

The arms of the gate are partially filled with fluid so that when the gate is lifted, the movement of fluid assists the operator elevate the gate. When fully elevated, the fluid moves to the other end of the gate to ensure the gate remains in the closed position.

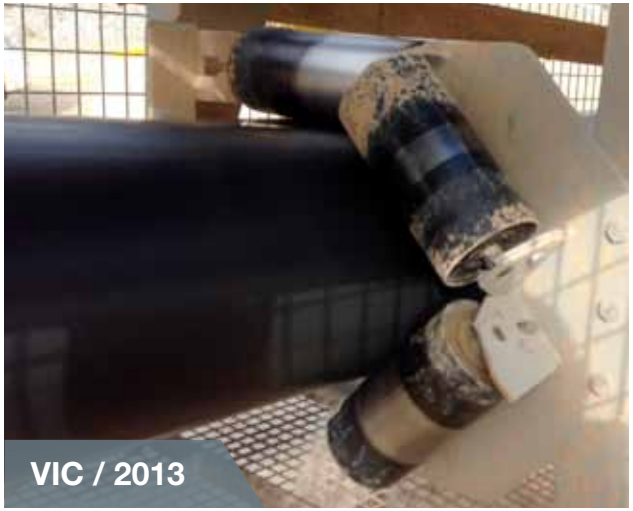
The system provides an elegant but highly effective solution to a working at heights hazard. It provides safe access to elevated platforms for the positioning and retrieval of pallets, and application of admixtures. The safety gate is easy to use, with a spring loaded pin automatically locking the gate in position.

BORAL CONSTRUCTION MATERIALS & CEMENT

TAILGATE TIPPER SYSTEM, QLD

Boral has designed and introduced a system to mechanically and remotely open tailgates when being used in barn door mode. This innovative response has the potential to reduce the risk of personal injury from large boulders as they slide out of the tipper body.

The solution consists of two pneumatic cylinders integrated into the side of the tipper body which, when activated, changes the tailgate hinge point and releases the tailgate overcoming any forces that may jam the tailgate in the closed position.



HANSON CONSTRUCTION MATERIALS

CONVEYOR BELT TURNING DEVICE BACCHUS MARSH QUARRY, VIC

Hanson designed and installed a conveyor belt turning device at the Bacchus Marsh sand quarry which rotates the belt 180 degrees, limiting the build up of fines on the rollers and guards, eliminating the need for guard removal and weekly cleaning over 95 per cent of the conveyor length.

This device reduces labour for cleaning, replacement of worn rollers, less down time for cleaning and increases productivity with a payback period of 18 months.

The Conveyor Belt Turning Device significantly reduced the manual handling, entanglement and slips, trip and fall risks associated with guard removal and conveyor roller cleaning.

BORAL CONSTRUCTION MATERIALS & CEMENT

ERGONOMIC CONCRETE TESTING VEHICLE, VIC

Testing of concrete is a very manual activity that had resulted in a number of manual handling and safety issues in recent years. The concrete tester's vehicles were redesigned in consultation with staff.

The newly designed ergonomic vehicles have a light weight canopy for ease of opening and closing, vibrating tables at an appropriate height, a pull out bench to reduce back strain, a secure storage rack to reduce the risk of injury during a vehicle accident, an awning for sun/rain protection and lighting to allow for safe night work.

These new attributes minimise manual handling risks associated with testing concrete and are readily transferable across the industry.

WA / 2013

HOLCIM AUSTRALIA

AUTOMATED GATE SYSTEM BIBRA LAKE, WA

A physical action audit identified that a person could fall from the bag area (5 metres above the ground) to the ground resulting in significant injury or death.

A solution was developed in consultation with plant staff and engineering services, which was to install two gates, one at the edge of the loading dock bag area and the other at the entrance to the bag area from the batch hut. The gates were engineered to prevent the gate to the entrance of the bag area from opening unless the other gate at the edge of the loading dock is closed.

This automated pneumatically operated gate system for the bag area at Bibra Lake significantly reduced the risk of falling from heights and created a safer working environment.

WA / 2014

BORAL CONSTRUCTION MATERIALS & CEMENT

B3 PROGRAM

The B3 program is a comprehensive program to assess driver wellbeing and injury risk by functionally assessing both new and current employees specifically around the attributes of their job role as an agitator driver.

Health and safety data for each employee was collected and then entered into a live database allowing all participants to access their results and monitor improvements or concerns.

This permitted management to identifying areas of risk and allowed them to implement proactive risk mitigation techniques to reduce injuries based on the data collected.

HANSON CONSTRUCTION MATERIALS

SURGE GATE UPGRADE
RED HILL, WA

During the Red Hill Quarry Upgrade Stage 2 it was identified that it would be difficult and dangerous to change out any of the components within the tunnel due to the open sections in the tunnel that material flows through during normal production.

It was decided to install pneumatic finger gates to eliminate the risk of having material fall through the opening when people are working on or around the feeders.

These gates were placed in a frame that mounted on the inside of tunnel between the tunnel roof and the feeder to allow the gates to be closed whilst maintaining a charged surge pile.

This relatively cost effective and simple solution eliminated the risk of falling material onto workers in the tunnel below and eliminated potential manual handling risks, yielding a great result.

HOLCIM AUSTRALIA

NEW ROYAL ADELAIDE HOSPITAL SITE SAFETY
ADELAIDE, SA

The New Royal Adelaide Hospital site is South Australia's largest infrastructure project. The $1.85 billion, ten storey hospital is set on one of Adelaide's main streets. The inner city location, combined with an 1800 strong workforce and a 100,000 cubic metre job requiring 200 trucks per day, led Holcim Australia to designing and implementing a unique and holistic solution to overcome safety concerns. Key features included:

- A new Traffic Management Plan, which identified adequate exclusion zones, hold points, speed restrictions, wheel wash facilities and GPS locators;
- New communication procedures to better structure delivery times and vehicle movements;
- Safe site practices at the busiest pump locations;
- Newly designed platforms rather than using ladders; and
- Fitting all agitators with reversing cameras.

With increased communication with the head contractor, including incorporating Holcim's new procedures into their Management Plan, Holcim has successfully completed the bulk of the concrete pour without a single accident and with 0 Lost Time Injuries.

HANSON CONSTRUCTION MATERIALS

SLUMP STAND UPGRADE
CONCRETE PLANT LAUNCESTON, TAS

The slump stands allows access to the agitator barrel to take samples and for cleaning.

The platform is normally tilted out of the way manually to allow trucks to move into position. The tilting mechanism exposed operators to pinch points and caused manual handling injuries.

The team at Hanson Launceston Concrete Plant revised the design to utilise compressed air to activate the mechanism. By locating the switch for the air well clear of the mechanism the risk of pinch points was negated. This innovation invoked the highest level of risk mitigation 'elimination'.

HANSON CONSTRUCTION MATERIALS

ROLLER CHANGING DEVICE
FLAGSTAFF GULLY QUARRY, TAS

Most quarries have crushing/screening plants to process the rock into various sized aggregates. The products are transported within these facilities by overhead conveyors. Elevated conveyors have walkways that provide access for maintenance to the rollers supporting the belt.

The return rollers carrying the unloaded belt under the frame are less easy to access. Changing out the return rollers posed a problem for the team at Hanson Flagstaff Gully Quarry. A fall arrest harness was required to enable one worker to climb onto the belt and reach over to release and catch the roller.

After finding nothing suitable in the market place the team set about designing and constructing their own roller change out device that would negate the need for a harness. The device developed and installed enabled the change out procedure to be completed from the walkway on one side using only one worker and eliminated the need to climb onto the belt.

The roller change out device is directly transferable to any elevated conveyor with return rollers under the frame.

CEMENT CONCRETE
& AGGREGATES AUSTRALIA

THANKS FOR YOUR SUPPORT IN THE INDUSTRY. FOR MORE INFORMATION PLEASE VISIT OUR NEW WEBSITE: www.ccaa.com.au

THE ONLINE RESOURCE FOR CEMENT, CONCRETE & AGGREGATES www.ccaa.com.au

CEMENT CONCRETE
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