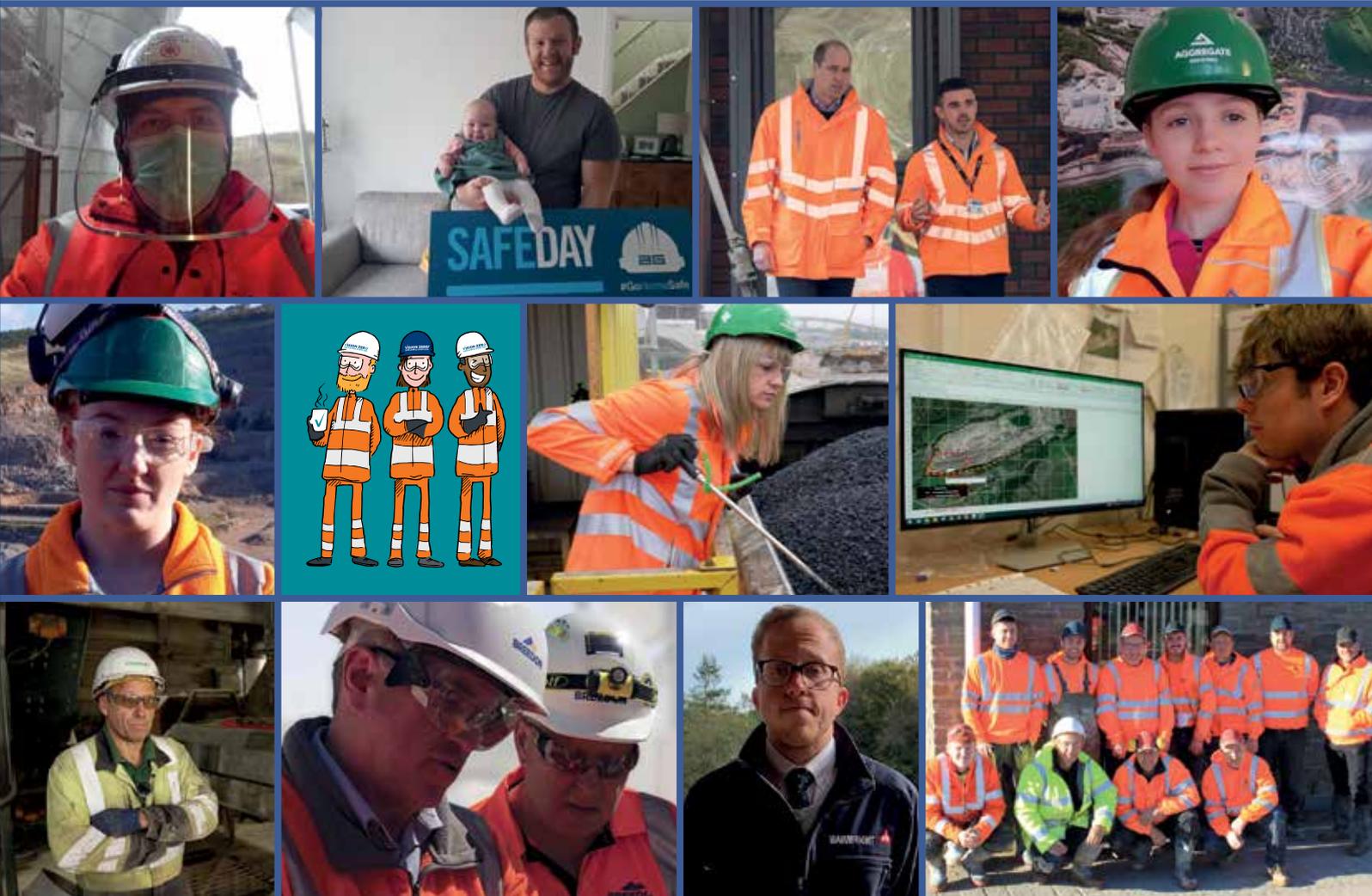


# Sharing good practice 2021 /22

WAYS TO MAKE YOUR WORKPLACE HEALTHIER  
AND SAFER - ELIMINATING 'THE FATAL 6'





# Mobile on-site chest x-ray service

Protect the health of those exposed to respirable crystalline silica

The Mineral Products Association (MPA) recommends entry into a chest x-ray program for employees exposed at or above 75% of the workplace exposure limit.

Industrial Diagnostics Company Ltd (IDC) are the leading providers of nationwide mobile, on-site chest x-ray services. With more than 20,000 chest x-ray conducted on employees exposed to RCS, we are the provider of choice for MPA members.

Our state-of-the-art mobile digital radiography generates high resolution images that are capable of detecting the very earliest signs of occupational lung disease.

## Benefits of IDC's chest x-ray program include:

- Enables employers to fulfil their statutory health surveillance obligations under COSHH
- Detecting early cases of Silicosis
- Referring any cases of Silicosis or occupational lung disease to an occupational lung disease specialist for ongoing medical advice
- Occupational lung disease specialist referral for further investigation where necessary
- Improving an employee's prognosis and enable effective management of employee's future exposure to RCS

## Why choose IDC for your chest x-ray program?

- Nationwide onsite service that can service up to 30 employees per day
- Efficient appointment times of 10 minutes per person
- New digital imaging technology
- Extremely low dose of radiation per chest x-ray
- Logistics allow small sites to share the service

For further information please contact our team on [imaging@industrial-diagnostics.com](mailto:imaging@industrial-diagnostics.com) or by calling **08450 775 512**.

# MPA HEALTH & SAFETY AWARDS ✓ SAFER BY SHARING

## MPA Health and Safety Awards 2022 Awards Event – 9th November

Good practice and innovations to make our industry a safer and healthier place for everyone.

Celebrating the outstanding performance that individuals and organisations have made on our journey towards 'Vision Zero'.

### THE AWARDS

- 8 Topic Awards
- 'The Fatal 6' Award
- The Eurobitume Award
- Young Leader
- Individual Recognition Awards
- John Crabbe Trophy
- Sir Frank Davies Award



### AWARDS EVENT

MPA HEALTH AND SAFETY AWARDS CEREMONY  
9th NOVEMBER 2022 – 30 EUSTON SQUARE, LONDON

RESERVE THE DATE IN YOUR DIARY

### SPONSORSHIP

A wide range of sponsorship packages and exhibiting opportunities



This event attracts an audience of CEO's, owners, senior operational managers, health and safety specialists and other individuals responsible for ensuring the health and safety of their organisation. It is recognised as the industry's showcase for the latest innovations and best practice in health and safety. Post event, the winning entries are promoted and shared through widely circulated, printed and digital resources that will also recognise sponsors.

For more information please contact Amy Aldred [amy.aldred@mineralproducts.org](mailto:amy.aldred@mineralproducts.org)

# Foreword



**The theme of the 2021/22 MPA and British Precast Health and Safety Awards was 'Safer by Sharing . . . Safer by Action'.**

To make this theme a reality, I urge you to review the entries in this guide and share them with your colleagues. I am confident that you will be able to identify innovations or systems that could be adapted to either eliminate or mitigate similar hazards within your own organisation. You may well prevent a serious injury or fatality by implementing one or more of the ideas highlighted in the guide. We are all safer when we learn from each other.

Many of the entries in the guide, relate to one or more of 'The Fatal 6'. It is gratifying to see how resourceful members have been in their efforts to eliminate these high consequence hazards from their business. The majority of these entries also reflect the core values that are central to the industry's achievement of Vision Zero. I believe that MPA's Vision Zero has been widely embraced by the membership, and this is beginning to be reflected in the leading and lagging indicators we are using to track our progress in this area.

For the 2021/22 awards, MPA introduced 8 new topics and updated the entry forms based on feedback from our members. I would like to thank all the members who submitted entries and would encourage you and others to submit your entries for this year's competition. It was great to see that entries were submitted by members of all sizes and from across all the product sectors that MPA represents.

As always, we are extremely grateful for the support provided by our suppliers and service providers, these sponsors are highlighted in this publication.

Finally, I am delighted that in 2021 we have introduced a 'Young Leaders Award'. I have been hugely impressed by what these individuals have achieved and would like to congratulate them. The young people in our industry will be the future leaders, it is inspiring to see that so many of them are already making such a positive contribution to the health and safety of their workplaces.

Once again, I would urge you not just to review these entries but use them to help the industry's drive towards Vision Zero. As you will see, each entry includes a comment about potential developments and how they might be applicable to other companies.

**Nigel Jackson, Chief Executive**

## The Awards

**This guide is a compilation of the winning, finalist and highly commended entries from the MPA health and safety awards 2021.**

They outline the solutions that MPA companies, contractors and suppliers have applied to minimise and, where possible, eliminate health and safety risks arising from their daily operations across all sectors of mineral products industry.

The ideas and innovative approaches are often very simple and inexpensive, and can be applied to a range of common industry problems. Organisations of all sizes will find entries within this publication that will be relevant to their own activities.

Please ensure that this guide is shared with colleagues at all levels within your company. A digital version of this guide and previous editions are downloadable from the Safequarry website.

The digital version of the guide also includes links to short videos that show the innovation or new process in action, and interviews with site operators talking about the benefits that have been realised. Winners of other MPA awards are also highlighted. A common theme of the winners was that their entries reflected the application of some, or all, of the Vision Zero values.

- **John Crabbe Trophy**
- **Sir Frank Davies Award**
- **Individual Recognition**
- **Young Leader**
- **'The Fatal 6' Award**
- **The Eurobitume Award**



**This publication epitomises the industry's belief that we will all be 'Safer by Sharing'.**

**136 entries from 35 companies – MPA members, contractors and suppliers:**

AG Paving & Building Products  
Aggregate Industries  
Breedon  
Brett  
Cappagh Group of Companies  
CEMEX  
D Wardle (Plant) Ltd  
Day Group  
Denfind Stone

EPC  
FM Conway Ltd  
F P McCann  
Grundon S&G  
Hanson  
Ibstock plc  
Imerys Aluminates Limited  
Invisible Connections Ltd  
John Wainwright & Co Ltd

Kilwaughter Minerals Ltd  
Leiths Scotland Ltd  
Lhoist  
LKAB  
Maen Karne Concrete Products (GRS)  
Mannok  
Mansfield Sand Co Ltd  
Marshalls PLC

Northstone Materials  
O'Donovan Waste Disposal Ltd  
Pemat UK Ltd  
Readyjet Services Ltd  
Sibelco  
Singleton Birch  
Suttle Stone Quarries  
Tarmac Ltd  
Tobermore

# Sponsors

MPA would like to thank the suppliers to the industry who have sponsored both our awards ceremony and this publication. The main sponsor was the Industrial Diagnostics Company (IDC). Individual sections show the companies which have sponsored them.



[www.industrial-diagnostics.com](http://www.industrial-diagnostics.com)  
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Industrial Diagnostics Company Ltd (IDC) are the leading providers of nationwide mobile, on-site chest x-ray services. With more than 20,000 chest x-ray conducted on employees exposed to RCS, we are the provider of choice for MPA members.



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# VISION ZERO

## SAFE & WELL EVERY DAY



## Vision Zero

**MPA and its members have committed to Vision Zero – to ensure that everyone goes home – Safe & Well Every Day**

**Vision Zero** is built around eliminating the causes of **'The Fatal 6'**. These are the high consequence hazards that analysis has shown are responsible for the majority of the fatalities, serious injuries and long term ill health in the industry. The strategy is to focus on these hazards in the work environment and, through a wide range of measures, achieve zero serious incidents or fatalities associated with 'The Fatal 6' by 2025.

## 6 strategies for MPA and its members to follow

- An unrelenting approach to **eliminating the things that can kill or seriously harm people** through adoption of industry safety principles and good practices focused on **'The Fatal 6'**.
- Developing **competent and committed leaders** at all levels.
- Promoting **recognition** as a means to support a positive culture within the workforce.
- Creating **forward looking measurement systems** which **balance** the measurement of 'the presence of safety' with the 'absence of incidents'.
- Helping members to create workplaces where **health and wellbeing is protected and promoted**.
- Actively promoting and facilitating **engagement** from all member organisations.



## 6 values to keep everyone safe



### Empowerment

Every worker has the right to stop any job if concerned it may be unsafe or unhealthy to continue.



### Engaged Visible and Consistent Leadership

Committed to achieving the vision of Zero Harm.



### Zero Tolerance of Unsafe Working Conditions

That pose a significant risk of injury or to health.



### High Quality Implementation

Developing clear health and safety principles, clarity of expectations, clear simple smart initiatives, no 'box ticking'.



### Collaboration and Sharing

Building effective relationships & sharing knowledge and good practices.



### Compliance

As a minimum with legal/regulatory requirements and MPA policies and aspiring to world class.

# One Vision, One Outcome, Everyone, Safe & Well Every Day

## 'The Fatal 6'

Analysis has identified 6 high consequence hazards in the mineral products industry that account for 94 % of all fatalities.

MPA has set up a working group for each theme. They are tasked to develop recommendations and resources to help the industry to eliminate the causes of 'The Fatal 6'.

Information about the 'The Fatal 6' and the resources available to help mitigate them are all accessible on 'The Fatal 6' section of Safequarry.

- 1 **Contact with moving machinery and isolation**
- 2 **Workplace transport and pedestrian interface**
- 3 **Work at height**
- 4 **Workplace Respirable Crystalline Silica**
- 5 **Struck by moving or falling object**
- 6 **Road Traffic Accidents**

**Mitigating high consequence hazards**

## Leading and Lagging Indicators

MPA will monitor the following:

**Leading indicators** – are those activities which are likely to lead to a reduction in fatalities and serious incidents in the future.

**Lagging indicators** – record what has actually happened – these include **MPA's hard targets** which show whether we are succeeding in making our workplaces safer and healthier.

### Leading

**Achieving more of the following:**

- Auditing of isolation and implementation of remedial measures
- Driver and contractor competency/skills cards
- Participation in H&S Leadership workshops
- H&S Good Practice awards submissions
- Sharing of high potential incidents
- Occupational health screening
- Routine monitoring of silica exposures
- Engagement in MPA H&S events
- Engagement in MPA Safety Days
- Engagement with MPA's 'Safer by Sharing'
- Engagement with MPA's 'Exchanging Places'

### Lagging

- **Hard Target 1** – Zero Reportable Incidents (fatalities or serious injuries) relating to 'The Fatal 6' by 2025.
- **Hard Target 2** – A 50% reduction in Lost Time Injury Frequency Rate (LTIFR) to 1.5 by 2025.
- **Hard Target 3** – Zero incidences of uncontrolled personal exposures to RCS above the Workplace Exposure Limit (WEL).



Safequarry website



3 Powerpoints



4 videos



Employee Guide



Reminder card

## Resources explaining Vision Zero



# John Crabbe Trophy



**This award is made to an MPA member company with over 250 employees that has achieved an outstanding health and safety performance.**

## WINNER



*"We are on a journey, our goal is to send our colleagues home safe and well every day. Our approach is aligned to 'The Fatal 6' and we are fully committed to the MPA initiative."*

*Rob Wood, CEO, Breedon Group*



*Rob Wood, CEO, Breedon Group*



*"Breedon was recognised with this award for their engagement with MPA Safety and in particular, their commitment to the Safer and Healthier by Leadership programme, and active participation in the 'The Fatal 6' working groups."*

*Chris Leese, Chair of MPA judging panel*



## FINALISTS



CEMEX were recognised by the judges for their strong health and safety leadership and cross industry initiatives and their 'Safety Essentials Take 5' which helped workers in the COVID pandemic.



FM Conway were recognised by the judges for a superb set of entries that were either finalists or the winner within their topics – all were based around their 'Big Ten in 10' Strategy.



# Sir Frank Davies Trophy



**This award is made to an MPA member company with 250 or fewer employees that has achieved an outstanding health and safety performance.**

## WINNER



The judges were impressed by Mansfield Sand's journey following an incident in 2017. The company has been on an impressive path to health and safety improvement.

This included training, the use of safety culture surveys and their 'Think Safe, Work Safe, Home Safe' strategy. They focussed on 'The Fatal 6' and their golden rules.

Their entry under the 'Safer maintenance and housekeeping' topic, an engineering solution to eliminate access hazards associated with their brick kiln, was the winner. The process the team went through in delivering this project exhibited all the Vision Zero values.

The company is actively involved in the MPA working groups.



Photo from winning entry (see page 17)



Richard Abraham  
Managing Director, Mansfield Sand

*"The trust that comes with this is important, we have to make sure that our employees trust us to make the right decisions, we trust them to do that as well"*

*Mansfield Sand Managing Director Richard Abraham*



Graham Green  
Health, Safety & Environment Manager, Mansfield Sand

*"We only have 78 employees, over the last 4 years we have done a lot of work on health and safety. Having this recognised by the MPA is fantastic."*

*Graham Green H&S Manager*

[Watch the Mansfield Sand video](#)

# Topic 1

# Safer production



**This award covers extraction, manufacturing and processing for all product groups.**

- A new innovation or engineering solution
- New systems or control measures
- A change in a process or procedure
- New warning system or training programme
- Investment in new plant

**VISION ZERO**  
SAFE & WELL EVERY DAY

WINNER		
<b>Aggregate Industries</b>	21048	Removal of bucket belt issues and confined space
FINALISTS		
<b>EPC UK</b>	21016	Danger zone modelling
<b>EPC UK</b>	21017	Enhancing safety by utilising drones
<b>FM Conway</b>	21142	Heathrow Asphalt Plant hot RAP modification
<b>Hanson</b>	21174	Innovative & affordable conveyor guarding solution
HIGHLY COMMENDED		
<b>Ibstock plc</b>	21085	Reduction in manual handling throughout manufacturing processes
CERTIFICATE OF MERIT		
<b>Breedon</b>	21112	Improved system to lubricate shaft and bearings within screenhouse
<b>Breedon Scotland</b>	21014	Hinged conveyor guards
<b>Ibstock plc</b>	21083	Supreme concrete sets the standard for reduced exposure to vibration
<b>Leiths Scotland Ltd</b>	21086	Access platform
<b>Marshalls plc</b>	21184	HAVs reduction in both WPD & CBP areas
<b>Tarmac Ltd</b>	21027	Remote control used for controlling feed rate at the material hopper
<b>Tarmac Ltd</b>	21123	Maintaining and operating safety related control systems to support safer working practices



# 21048 Removal of bucket belt issues and confined space



Aggregate Industries > Westleigh Quarry **1** **4** **5**



Confined space



Snagged belt

## DESCRIPTION

Aggregate Industries' Westleigh Quarry had a problem with a bucket belt and straight conveyor that was lifting when empty due to a change in gradient and snagging on the tail drum.

The two belts were located in the secondary plant which had a return section, the bucket belt allowed material to be transferred up into the plant to pass through a crusher on the return leg. For this process to work, the conveyors had a transfer point which was below the platform level, the tail drum of the conveyor was in a confined box accessed via a vertical ladder.

The bucket belt often caused issues with side walls failing or ripping which allowed material to fall on to the walkways or around the tail drum. Often a section of broken plant would get caught in the chute at the transfer point, this would choke it up. Operatives and fitters were then required to clear the chute from the confined space.

A project team was set up to resolve these issues. Their solution was to replace the existing system with one standard belt and rollers. This overcame these issues and therefore, removed the need for the operatives to regularly be required to engage in tasks that involved work in a confined space, clearing the two transfer chutes, working on two drive systems, clearing spillages and undertaking repairs to the bucket system.

The removal of the old system and installation of its replacement took one week. The system was able to work using one of the existing drives. One innovative element of the project was the introduction of wheels from a child's quad bike at the point where the conveyor changed direction. This innovation prevented the belt rising from its rollers, which created spillage below. The wheels also removed pinch points as the wheel arms would allow the tyres to lift over hard objects and prevented the belt from tripping the speed sensor.

The full cost of this innovative design was around £11,000. The belts had been in this layout since 1986, the team considered all impacts in the 'management of change' and ensured all new risk areas were covered. The project reflected Aggregate Industries commitment to employee engagement and leadership at all levels, the team being given the time and space to implement their ideas.

## BENEFITS

- Two high risk tasks and areas of work removed
- Improved efficiency of maintenance and safety of the plant
- Improved production efficiency
- Reduced running costs of conveyor system
- Confined space working no longer required in dusty environment
- Reduced levels of spillage and housekeeping required
- Reduced downtime due to conveyor failure
- Improved morale of maintenance and production team.
- Improved safety culture as team worked together to find solution.

## DEVELOPMENT AND TRANSFERABILITY

Whilst this application may be replicated in another plant, the key element of this project that is transferable is the approach to the problem.

- It recognises that a team knows their site and gives them the license to consider improvements such as changes to the process, ways to remove downtime issues and mitigate risk. This is essential for both the site and company to get the best results.
- It recognises that no plant is unable to change, just because a plant has been operating for years in a particular layout, it does not mean that it is configured in the best or most efficient form. Technology has changed and engineering moved forward. New ideas must be considered that may provide an option to improve the process.



The quad bike wheels



21017

# Utilising drones to conduct pre and post blast surveys.



EPC United Kingdom PLC > Venture Crescent > Alfreton > Derbyshire **2** **3** **4** **5** **6**

## DESCRIPTION

When providing drilling and blasting services, EPC UK's shotfirers must accurately calculate the position of the boreholes and rock faces. This information is then used to determine the safe quantity of explosives which can be used in each hole.

Prior to EPC UK utilising drones to conduct pre and post blast surveys, all surveying was performed using laser scanners set-up on tripods at a number of locations, with additional personnel required to 'spot in' the holes. By implementing drone technology within its operations, EPC UK has eliminated or reduced slips, trips and falls, potential contact with moving plant machinery, the risk of falling objects, and the need for manual handling of the heavy survey equipment.

The drone operators can now conduct the survey from a safe position in the quarry, away from mobile plant and avoiding the need to carry equipment over uneven and potentially unstable ground in different sections of the quarry. The data gathered can then be fed into a computer system that creates accurate models of the face being surveyed.

EPC-UK now has 20 active drone operators completing operational tasks on a daily/weekly basis nationwide, reducing the need for personnel to put themselves in a potentially hazardous situation.

Pilot training is an integral part of EPC's project to introduce the drones into the business. All drone pilots are qualified to the required UK Civil Aviation Authority standard for the requisite tasks. Training is provided by an external company, Drone Pilot Academy, to ensure that all pilots have the required practical and theoretical knowledge. Additionally, all drone pilots are expected to attain a Flyer ID from the UK Civil Aviation Authority before undertaking any practical training.

EPC have introduced a management control system to ensure all employees comply with the company's operational authorisation and have an audit process to confirm this compliance is achieved.

The data from the drone surveying is linked to EPC's blast design software, helping to ensure more effective and accurate blasting.

## BENEFITS

- Removed employees from hazardous environments
- Reduced risks of slips, trips and falls
- Reduced exposure to site traffic
- Reduced need to work at height
- Reduced exposure to falling objects

- Improve accuracy of data and face models
- Reduce scanning/surveying time
- More effective blasting
- Safer downstream processes
- Workforce have gained new skills and expertise.

## TRANSFERABILITY AND DEVELOPMENT

- EPC has shared its drone technology updates and implementations with the industry, posting on social media, delivering talks, and updating quarry managers with relevant information.
- EPC plans to implement the drone technology across all available UK sites, eliminating the requirement for traditional surveying activities in as many locations as possible.
- The concept of using drones for surveying is becoming increasingly popular throughout many sectors, the technology EPC has developed is already being adopted for use at other sites and is gradually being rolled-out by other companies to advance their surveying.



Drone pilot



Computer profiling model

Visit [www.safequarry.com](http://www.safequarry.com) for more details or email: [info@safequarry.com](mailto:info@safequarry.com)



# 21174 Innovative and affordable conveyor guarding solution

Hanson Aggregates > Chipping Sodbury Quarry

1 4



View of guarding on conveyor system

## DESCRIPTION

At Hanson's Chipping Sodbury Quarry it was decided that the conveyor systems should be fully enclosed to achieve the best protection for employees and contractors on-site and to minimise the environmental impact of dust and noise. However, the cost of using traditional steel-based systems was perceived to be prohibitive both in terms of the initial investment and subsequent running costs.

The solution used was designed to be the safest, lightest, simplest mechanism that could be adjusted with standard tools, was robust, long lasting, and economical. It can be fitted anywhere, and it will help the industry to keep people safe.

The team considered that it was necessary to maintain traditional heavy-duty steel-built guards to protect people from drums, gravity tensioning units or return rollers.

For all other areas in between, a modular tensional system with 900gsm heavy duty Poly Vinyl Chloride sheets has been used. These panels are rolled up at both ends to achieve the desirable tension. In addition, they are bolted on the top and bottom every 600mm to a Unistrut (pre-galvanised slotted channel) profile sections. The system can be applied even when there are changes in direction. A total side enclosure is achieved offering the highest level of protection.

It is adaptable to any size, shape or form. The modular system has been built to fit every conveyor. Some sections of the conveyors are fully enclosed, other sections have clear windows or meshes with lids to allow for inspection.

The system offers better protection than the traditional guarding, especially with regards to noise pollution, dust emission and completely stops the possibility of coming in contact with moving parts.

The design has been developed based on feedback from employees.

## BENEFITS

- Significant reduction in investment required (75% lower cost) with installed cost of £120 per metre
- More robust and longer lasting system
- Removed the possibility of individuals on-site coming in contact with any moving parts
- Eliminates possibility of entrapment or entanglement
- Eliminates spillage on walkways removing potential slips and trips hazards on walkways
- Reduced employees and contractors exposure to dust and noise
- Reduced manual handling when replacing sheets 6 metres in length weighing 10Kg
- Environmental benefits of reduced dust and noise
- Improved community relations
- Panels can be chosen in different colours to match the landscape or to meet planning requirements
- The system is light, and it can be replaced by one fitter without assistance
- No need for lifting equipment
- Significant reduction in time and cost of maintaining the system
- Eliminates problem associated with corrosion with steel guarding
- The site is cleaner and looks better – enhancing the site culture of safety and
- A safer working environment for all.

## TRANSFERABILITY AND DEVELOPMENT

- The solution is in constant development
- This solution can be transferred to other sites and other industries
- The solution has been shared across the business
- Currently working on the process of further enhancing standardization.



21142

# Heathrow Asphalt Plant hot RAP modification

**FM Conway**

## DESCRIPTION

The hot RAP system at Heathrow Asphalt Plant has historically suffered from blockages in the heated chute that transfers the material from the weigh hopper to the asphalt mixer.

In the past, oil-based release agents have been used to assist the movement of the RAP through the chute. Two years ago, it was recognised that there is a considerable risk in introducing oil-based products into an environment with elevated temperatures and pressures that occur during the production of asphalt. In the past, there have been a number of high consequence explosions at asphalt plants.

The chute was built with a slant to the OEM design of 50 degrees and, due to design constraint of the plant, there was no way to increase the angle of the chute to ease the flow of the RAP. During 2020, numerous modifications were tried to prevent the blockages, liner plates in the chute that had specialist coatings or fabricated chutes using a different material, all of which had no notable success.

Continually having to unblock the chute created a number of risks, such as the hot material and fumes from the mixer box, the manual handling of rods and scrapers.

The Heathrow team set up Big Risk group to consider the options and decided to make a significant change to the OEM design of the plant to eliminate the problem.

The chosen engineered solution to this problem was to remove the angled heated chute and replace it with a vertical chute that fed onto a high-speed conveyor that in turn fed the RAP into the mixer. Neither the OEM nor any of the other engineering companies that FM Conway used regularly on the asphalt plants supported this, leaving FM Conway to manage this innovation.

### There were five main components to the project.

**1, The conveyor.** Using a Wirtgen conveyor made the integration to the control system easier with all components being familiar.

**2, The conveyor belt.** The belt needs to be able to withstand a considerable variation in heat during production, several different chemicals and oils that are found during the production of hot RAP and the abrasive nature of RAP. The belt selected was the closest to meeting all the criteria.

**3, Electrical installation.** A N Naylor were chosen because they are familiar with the plant, the process, and the control system.

**4, Mechanical installation.** GJP were given the mechanical installation part of this project as they have two engineers who have worked on prototype projects and understand the need for design changes during the installation and commissioning.

**5, Software and control system modifications.** Software changes and the control system modifications were carried out by Wirtgen to allow the total integration of the hot RAP conveyor into the process without any negative effects on production capabilities.

Over a three-week period, the old equipment was removed, and new system installed, with material trials and modifications undertaken during the commissioning process. The problems that needed to be addressed were.

- The inlet chute to the mixer from the conveyor could not cope with the quantity of material being delivered. This was overcome by removing the chute and fabricating a new chute with increased volume capacity, installing the chute, and testing.
- The conveyor belt scraper could not cope with the adhesiveness of the RAP which during production was accumulating on the belt. A new and more effective belt scraper was installed.
- On the first five or six batches the RAP was slow to discharge from the weigh hopper. The control system can “dose” the RAP from the weigh hopper onto the conveyor belt. It was found that at the beginning of a production run the “dose” timings needed to be increased until the RAP was at optimum temperature allowing the timings to be reduced and expected tph production levels met.

Throughout the project and into commissioned use, risk assessments and safe systems of work were in place with teams trained in the safe operation of the conveyor. Several Big Risk audits were conducted to ensure standards were maintained and any weak signals or high potential incidents were captured.

## BENEFITS

- Reduced confined space working
- Reduced working at height
- Reduced exposure to fumes
- Reduced manual handling
- Reduced exposure to hot material
- Reduced exposure to RCS
- Reduced risk of being struck by a falling object
- Reduced the need for human intervention
- Improved production efficiency and throughput (TPH)
- Reduced energy consumption
- Elimination of oil-based release agent



- Cost and environmental benefits
- Demonstration of the effective application of 'The Big Ten in 10' hierarchy of controls
- Enhanced culture of employees openly questioning 'how else can we improve health and safety'.

#### TRANSFERABILITY AND DEVELOPMENT

- This project reflects how the cultural influence of 'The Big Ten in 10' guided FM Conway to look for solutions that would eliminate the problem and combining this with the continuous drive for improvement.
- It highlighted to FM Conway how few contracting companies were able to proactively support this project.
- This project was shared across the company so others could learn and to allow others to reflect on their current process and if they are able to apply elements of this project to their site.
- The project improvement can be applied to all similar processes involving the same or similar materials but should be subject to conventional planning and risk reviews to ensure compatibility with any existing process and infrastructure.
- Development of the current system will be focussed on longevity of the belt, improvement in the scraper on the belt return to eliminate spillage and improving wear time. Additional resource will be put to improving the process control of the belt and materials.



*New vertical chute and high speed conveyor*





21016

# Danger zone modelling – calculation of a danger zone surrounding a blast

EPC United Kingdom PLC > Rough Close Works **5**



## DESCRIPTION

Currently, most quarries determine a blast danger zone (exclusion zone) based on a combination of experience and practicality. This often results in the specification of 'a danger zone of convenience', typically set to the boundary of the quarry. This method may lead to danger zones that do not reflect the actual risk involved with the process.

EPC UK has succeeded in implementing an improved approach to setting the zone, governed by mathematics and using software technologies. By utilising a formula explained within the ISEE Blasters' Handbook, together with a pre-determined factor of safety, the company's skilled metrics team recognised that a numerical danger zone could be effectively calculated and implemented. Quarry engineers could safely apply the guidance and improve the positioning of the controllable boundary.

The algorithm can work out the fly rock distance for either a collar, or from the free face. Depending on the unique blast design, this information can calculate maximum fly rock distances using data entry of blast properties, including explosives type, burden, spacing and rock density. The quarry is then free to increase the zone to a controllable boundary – such as the limit of the excavation without compromising any areas which have been identified using the modelling tool.

The modelling software's plotting capabilities also generate an overlay of Google Maps and provide clear, visible information for all individuals involved.

EPC-UK has ensured appropriate, high-quality training for users.

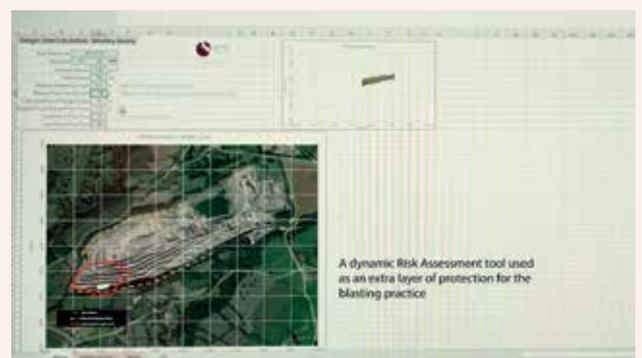
## BENEFITS

- Enables comprehensive identification of the danger zone and its potential risks
- Reduced risk of individuals being struck by fly rock
- Enables site to be more effectively managed during blasting
- The system supports quarry managers' practical site knowledge and training
- Helps to change or improve individuals' behaviours surrounding 'using a danger zone of convenience'.

## TRANSFERABILITY AND DEVELOPMENT

- The danger zone modelling tool benefits from its ability to 'be developed' as a response to user feedback and subsequent iterations
- EPC-UK will release the software to an increasing number of operations as an on-going process both in UK and internationally

- Danger zone modelling could be applied to other industry sectors such as the wider construction sector, transportation and logistics. It has the scope to be adapted and applied to risk orientated situations and deliver vast potential for safety improvements
- EPC-UK specialist training courses, both classroom-based lessons and virtual webinars, are open to all industry professionals
- The development of the system to utilise both drone surveying and danger zone modelling together.





## 21085 Reduction in manual handling throughout manufacturing processes

Ibstock plc > Supreme Concrete Division

*The rebates being lifted out by hand; the suction between the rebate and the concrete make this process difficult*



### DESCRIPTION

At Ibstock's concrete products manufacturing site, rebate formers (rebates) were used in the slotted post casting process to manufacture the top slot. The post was cast and then the rebate was manually lifted by the operator. This activity was repeated by operatives over 80 times a day.

The suction that is created between the rebate and the concrete during the casting phase increases the force required to lift the rebate, this created a manual handling risk.

Following employee consultation, a review of the risk assessment was undertaken. It identified that there was also the risk of an operators' gloves slightly catching when lifting the rebate, due to the suction created. Throughout these assessments, Ibstock referred to the HSE's Manual Handling Assessment Charts (MAC) and Assessment of Repetitive Tasks (ART).

This included assessing the postures adopted by the operatives when completing the task, examining the weight of the load and how far it is lifted and carried, and finally, the frequency of the task.

To minimise the manual handling risks, Ibstock automated a central element of the production process through the installation of a rebate lifter, which has been developed to mechanically lift the rebate from the cast product. The lifter eliminates the operator having to physically lift the rebates from the mould, substantially reducing the level of manual handling required by the operator.

The lifter is activated with a two-handed lever on each side, which prevents operator entrapment when in use. The lifter's design enables it to be retrofitted onto existing moulds or specified as an addition to any new moulds ordered.



Initially tested and trialled by an experienced and competent operative, the lifter has been implemented across the entire site as a standard operating procedure (SOP) and a new safe system of work has been documented.

The new technology has been implemented at Ibstock's Bedford site.

### BENEFITS

- Substantially reduces operative's exposure to manual handling tasks
- Improved efficiency of the operation
- More consistent rate of production
- Significantly improved the health and safety culture
- Enhanced the competences of operators
- Reflects Ibstock's commitment to continuously enhance health and safety
- A safer environment for all

### TRANSFERABILITY AND DEVELOPMENT

- As a result of the overwhelmingly positive feedback by operatives at the Bedford site, the technology is being implemented across all relevant areas of Ibstock's business to successfully reduce and eliminate the potential risks previously faced.
- Ibstock is reviewing other opportunities to automate this stage of the manufacturing process and looking for other potential areas for automation to protect and minimise the potential hazards.
- This technology could be implemented industry-wide.

## Topic 2

# Safer maintenance and housekeeping



**This award covers all aspects of maintenance and housekeeping for all product groups.**

- Safer methods of carrying out a maintenance process
- Safer ways of cleaning all types of equipment
- Innovations that have made a maintenance process unnecessary.

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# WEAR

## Minerals

WINNER		
<b>Mansfield Sand Co Ltd</b>	21003	Brickworks – safe kiln access and inspection project
FINALISTS		
<b>Aggregate Industries</b>	21045	Structural asset geo-location and logging project
<b>FM Conway Ltd</b>	21130	Asphalt drum hydro blasting
<b>FM Conway Ltd</b>	21149	Safer bitumen tank repair
HIGHLY COMMENDED		
<b>Aggregate Industries</b>	21152	Use of QR codes to access Regulation 12 inspection forms
<b>Breedon</b>	21052	Preventing unauthorised use of workshop machinery
<b>Kilwaughter Minerals</b>	21036	Installation of festoon type jib to reduce manual handling risk factors
<b>Readyjet Services Ltd</b>	21080	Safe solution for removing concrete build-up from mixer drums
<b>Tarmac</b>	21076	Safe access & egress (drawbridge)
CERTIFICATE OF MERIT		
<b>Mansfield Sand Co Ltd</b>	21002	Spill point automatic vacuum system
<b>Aggregate Industries</b>	21010	Turning the tables on safety
<b>Sibelco</b>	21067	Silo maintenance hoist basket
<b>CEMEX</b>	21098	Weigh scales pulldown point protection
<b>Breedon</b>	21125	Mechanical isolation on horizontal shaft crusher rotor

21003 **Safe kiln access and inspection project****Mansfield Sand Co Ltd > Brick Division** 1 3 5**DESCRIPTION**

The brickworks at Mansfield Sand have a large curing chamber for the bricks consisting of racking configured into 9 lanes, each containing room for 30 stacks of pallets, each stack is 19 pallets high. As a result, this is deemed a critical structure and must be maintained in good condition to remain structurally sound.

Access to the kiln for inspection is across a pit approximately 750mm deep that carries the mother and finger car used to load and empty the kiln racks. This means it is not easily accessible for pedestrians or to get MEMPS into the kiln area for access at height to inspect or repair the structure.

Unsafe behaviours were identified where personnel were walking across the mother car to cross the pit, this did not have a walkway, there were trip hazards and no fall protection. Following an incident where someone fell and was injured, Mansfield recognised that it was necessary to improve both pedestrian and machine access to the kilns. At the same time, a more frequent inspection policy was introduced making the provision of good access even more critical.

A team was set up to review this issue including the operatives who were involved in operating and maintaining the system. The solution they proposed was that platforms should be added to the mother car that would allow safe access across the pit for pedestrians and provide a deck for the scissor lift to be carried between lanes of the kiln. A platform was added that included some steps down into the pit. Although decking was provided for the scissor lift, there was no easy way to get the scissor lift onto the platform. The scissor lift was placed onto the decking using a forklift as there was no safe access point to enable it to be driven on. Ramps were provided to give the scissor lift safe access into each kiln. These ramps were heavy and required two people to lift and lower them between lanes. Further work was identified as being needed to make the task safer and more efficient.

A safe access point was required that would allow the scissor lift to be driven onto the mother car avoiding the lifting operation. The solution to this problem was to cut a hole in the wall of the kiln and install a new roller shutter door with an interlocked guard inside the kiln. This provided both a safe access allowing the scissor lift to be driven onto the platform, and the option to view operations from behind the closed guard. The ramps were changed to lightweight aluminium versions that were hinged to the mother car platform. These ramps could be lifted and lowered more easily and avoided the need to be carried.

Mansfield Sand also purchased a dedicated scissor lift instead of hiring one, ensuring easy access at any time and reducing the risk of unsafe behaviours because equipment was not available.

A short video of how the process works was produced by the site for use as a primary training tool.

**BENEFITS**

- Easier and safer access to the kiln
- Inspections have significantly less impact on production
- Critical structural inspections can be completed in a few days
- Elimination of potentially hazardous lifting operations
- Reduced exposure to the risk of being struck by moving objects
- Elimination of climbing/use of ladders – reduced working at height risks
- All access to kilns at height by a Mobile Elevated Moving Platform (MEMP)
- Safer emergency response if individual injured at height
- Safe access across the mother car – reduced risk of fall from height
- Safe access via ladder to the bottom of the pit
- Elimination/reduction in manual handling of ramps
- Reduced exposure time to hot and humid kiln environment
- More efficient maintenance – operatives can assist engineers with the kiln inspection process
- Operatives' skills have been enhanced
- Process has helped enhance safety culture at Mansfield Sand.

**TRANSFERABILITY AND DEVELOPMENT**

- The kiln access project is complete and has been proven over the last year. The idea is readily transferable to all brick and block plants requiring working at height within a kiln but by its nature, would need to be made site and plant specific
- The system has been shared with the original equipment supplier partners.



Before mother car adaption



MEMP in kiln lane



Ramp



Crossing mother car

21149 **FMC Safer bitumen tank repair****FM Conway** **5****DESCRIPTION**

At FM Conway's Imperial Bitumen Terminal on the River Thames, Gravesend, bitumen is delivered into a series of tanks for storage and blending. The two largest tanks are 18m in diameter and 18m high and have a capacity of 3,000 tons of bitumen. These tanks are over 75 years old. As a result of corrosion, large portions of the base and sides up to 1m from the ground needed to be replaced with new steel plates 12mm thick.

**Corrosion at base of tank**

Careful and accurate planning was required for this task. Any failure had the potential to be catastrophic, resulting in the risk of explosion/fire or total collapse. FM Conway set up a team to plan and complete the repairs during the period from middle of December 2020 to March 2021. FM Conway used the principles set out in its 'Big Ten in 10' to analyse and mitigate the significant risks associated with this project.

The initial challenge was to clean the tank of bitumen to a standard where it was safe to carry out hot works for flame cutting and welding. The second was to work out how to support an 18m high tank weighing 75 tons while the base and sides up to 1m from the ground were cut out.

The project was conducted under Temporary Works BS 5975:2019 Code of Practice and within the requirements of Construction Design Management Regulations 2015. FM Conway acted as the client, principal contractor and designer. All design calculations were cross checked with their structural engineers and approved. Guidance documents were written based on HSE Guidance,

Eurobitume and The Model Code of Safe Practice Part 11: Bitumen safety code.

It was decided that the tank would be supported on specially designed stools whilst the bottom section was cut from it. The tank was free standing whilst the floor was replaced and then the sides were removed in 4m sections and new sections welded into place.

Rather than use a manhole hatch as the means of entry to the tank, a full height doorway was cut into the side of the tank to de-risk the confined space work required and to facilitate the easy removal of materials.

As the risk of fire or explosion was high before the inside was cleaned, it was necessary to cold cut the doorway. An accurate cold cut was made using high pressure water with a fine crushed garnet added into the flow.

Prior to commencing the work, as much residual bitumen as possible had been extracted by modifying the withdrawal points and using an uplift tanker. What remained in the tank following this was allowed to cool, to assist the cooling cold air was blown into the tank with fans, hardening the bitumen beyond its normal state. This made it easier to remove and separate the bitumen from the tank bottom and sides.

FM Conway used its own highly trained, confined space teams to clean the inside of the tank and remove the heater coil, to make it safe for hot works to be carried out. This was completed by hand breaking out using a jack hammer into an IBC pallet truck to an extraction point by crane. All the hardened bitumen was recycled.

Confined space entry protocols RAMS had previously been written and the teams trained for the task, lift plans were also written. Care was taken to ensure there was adequate ventilation and extraction in place during plasma arc cutting and welding, powered respirators were worn to alleviate any residual risk.

All the new steel sections had been cut and shaped off-site to minimise work required inside the tank. The sides were cut using plasma arc all the way around the tank leaving the tank independently supported on its temporary structure. The floor was cut out and plates removed using pallet trucks. The bedding was relayed, and new plates installed, all welds were then checked using a vacuum box.

The new tank sides were installed in 4m sections shaped for the circumference of the tank and custom fitted to 1m high. All the plates were lifted into position by crane and final location to fit on rollers.

The welds on each installed plate were vacuum checked. In addition, on completion the tank welds were tested using



an industrial radiographer to x-ray them. Finally, the tank was hydrostatically tested with over 2,800,000 litres of water. The tank was then opened again cleaned out, connected to external pipework, partially filled with bitumen and recommissioned 7 days ahead of schedule.

The team at FM Conway developed an innovative approach to solving unusual problems whilst minimising and controlling risk. For example, the method of supporting the tank which had to withstand the additional stresses caused by three major storms that occurred over the construction period.

The project was successfully completed in 35 days without incident. During the project 34 tons of steel had been removed and replaced and over 1,000m of weld completed. FM Conway had applied the principles of 'The Big Ten in 10' and its philosophy of controls was evident in the way this project was planned and executed to minimise risk at all stages.

### BENEFITS

- Project was delivered without incident
- Minimised risks associated with confined space work
- Minimised risks associated with being struck by falling objects
- Raised the levels of competence of the team
- Demonstrated management of a project in a high-risk environment
- Reinforces application of Big Ten in 10 principles

- Demonstrated the value of the industry codes of practice
- Innovative and cost-effective project to extend life of tank age.

### TRANSFERABILITY AND DEVELOPMENT

- Should the task need to be repeated on other tanks, FM Conway has learnt from the experience and can see how the process could be improved using automated machinery.
- The technique could be applied by other companies if they have similar tanks, this is more likely to be on bitumen farms than modern asphalt plants. The abrasive water jetting could be used on plant and structures where intrinsically safe, cold cutting of fuel storage facilities may be required.



Cold cutting doorway in tank



Specially constructed stalls to support the tank



21130

# Asphalt drum hydro blasting

FM Conway &gt; Heathrow Asphalt Plant

1 3 4 5



Before



After

## DESCRIPTION

At FM Conway's asphalt plant at Heathrow, it was necessary to regularly remove the build-up of material sticking to the dryer finger lifters in the RAP drum. These fingers lift the material and drop it in front of the heat screen to allow the product to be heated and mixed correctly. Over time, the RAP drum clogged with old material blocking the finger lifters and cooled material stuck to the drum. This causes the plant to run less efficiently and results in more wear and tear on the components due to the increased weight of this material.

Staff had to enter the drum with power tools to manually remove the built-up material. This process involved a shift of 4 people working over 2 days to clean and replace 6-10 finger lifters. As there are 60 fingers in the dryer, to gun out a full dryer would take at least 2 weeks. This would involve a full shut down and would need to be repeated 3 to 4 times per year.



High pressure jets

Using the Big Risk thinking, a team was formed to search for a safer method of cleaning the fingers. They came up with the use of high-pressure water. The technology had been used in a cement environment but was not common practice in asphalt processing. It is based on a high-pressure water machine that uses water jets that hydro blast the material from the asphalt drum. The jet operates at 1000 bar and uses 231 litres of water per minute. The material removed can be recycled to prevent unnecessary waste. The system takes 3 hours to set up, the rest of the plant can remain running during the set-up process. Cleaning the RPA drum can now be completed in 1½ days. The cleaning is undertaken 3 times a year.

The new system significantly reduces the requirement to carry out work inside the drum. The plant runs more efficiently, with greater reliability and less wear and tear on components. FM Conway can now introduce and trial recycled material in mixes because there is less built-up material stuck within the drum.

## BENEFITS

- Eliminated exposure to workplace RCS whilst cleaning out dryer
- Confined space entry nearly eliminated
- Eliminated HAVS whilst removing material build-up
- Eliminated potential for hearing damage working inside drum
- Manual handling associated with moving material and equipment
- No need to cut or weld so no hot works carried out
- Reduced isolations required by increasing reliability
- Reduce plant down time for cleaning finger lifter
- Estimated that the dryer will be 3-4 times more efficient in creating a better material curtain
- Significant reduction in energy use and running costs
- Greater flexibility to run additional recipes using other RAP
- Significantly reduced wear and tear on components.

## TRANSFERABILITY AND DEVELOPMENT

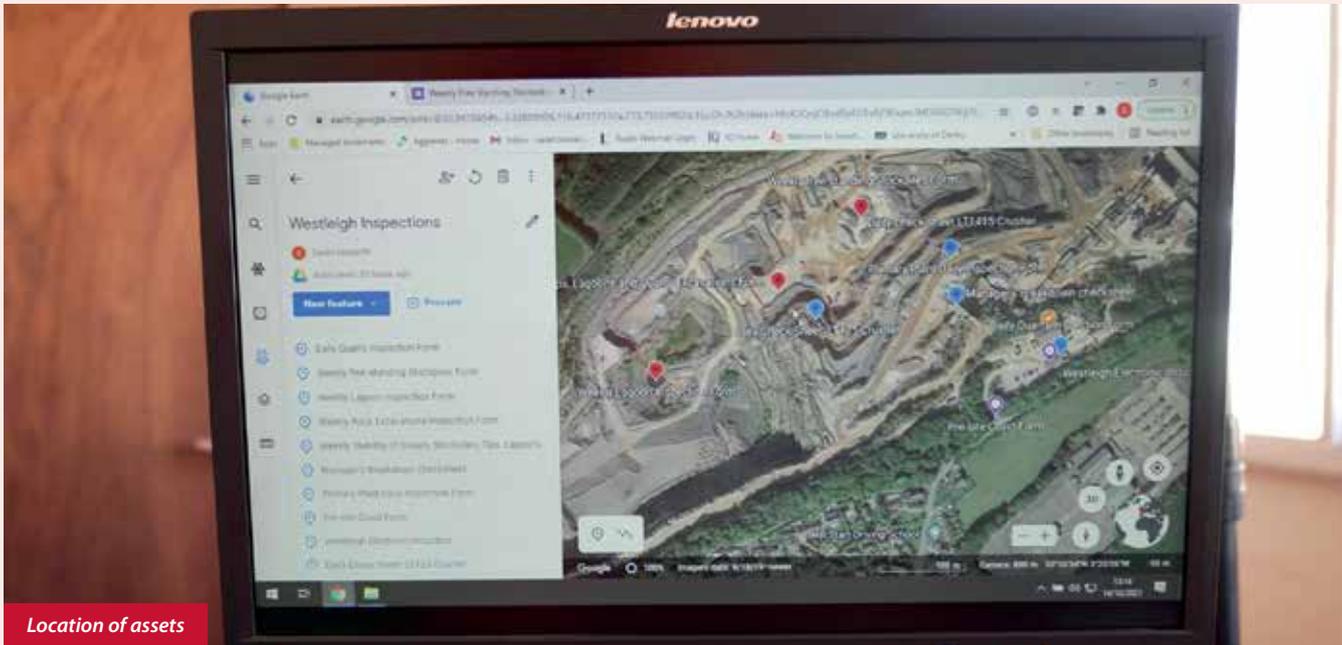
- This process will be used at all other FM Conway sites to remove material build-up in the RAP Drums. On-going improvements are being made with an aim of eliminating the requirement for an operator to enter the drum to set up the equipment.
- Additionally, the recycling and filtering of the wastewater is being investigated to see if this could be used in the site dust suppression system.

Visit [www.safequarry.com](http://www.safequarry.com) for more details or email: [info@safequarry.com](mailto:info@safequarry.com)



# 21045 Structural asset geo-location and logging project

Aggregate Industries > Westleigh Quarry



Location of assets

## DESCRIPTION

Following a pattern of incidents and near misses linked to structural assets being missed from safety surveys both internally or by contractors, it was recognised that a robust system needed to be implemented to improve site safety for employees and visitors.

Using the freely available Google Earth interface with satellite overlays a new system was created. Each asset on a site was geo-tagged with a pin detailing the asset name and further information such as, a description of how to access the asset, photographs of the asset, and in some cases, inspection forms (using google forms) and risk assessments.

The system generated reports detailing when assets were due to be reviewed and all relevant information relating to the asset could be viewed such as the last review, details of actions taken or required.

After piloting the system at Westleigh Quarry, the concept was presented to an area management meeting. The managers from other sites were keen to roll this out on their sites.

This has become a well-used and key planning tool across the AI region for both this structural asset project and as a central indexing tool for a range of different uses. This project has made working conditions safer by minimising the chances of unsafe working conditions on sites and therefore reducing the chances of incidents and near misses.

## BENEFITS

- No incidents or near misses linked to the site's structural assets since implementation

- Significantly reduced possibility of any assets not being reviewed
- Reduced risk of unsafe conditions on-site
- Provides visual display of all assets on-site
- Easy to update when assets are added, removed or moved
- Information easy to share with employees, contractors and managers both on or off-site
- Accessible on wide range of platforms e.g tablets, laptops and phones
- Can be used in video conferences
- Useful tool for briefing, inductions and training
- Photographs aid asset identification
- More efficient management of site
- Good data security.

## TRANSFERABILITY AND DEVELOPMENT

- The system is well used and a key planning tool across Aggregate Industries Western region both for structural asset management and as a central indexing tool for a range of different uses.
- This is highly adaptable, it can be used on a range of different sites and locations.



21152

# Use of QR codes to access Regulation 12 inspection forms

Aggregate Industries > Chard Junction Quarry



## DESCRIPTION

Regulation 12 of the Quarry Regs states:

***"...ensure that, where appropriate, suitable written reports are made of inspections...each report records significant defects... and is signed by the person making it...and countersigned by an appropriate person in the management structure..."***

Inspections at Aggregate Industries, Chard Junction Quarry were carried out using a paper-based system, by a different people, and periodically checked by site management. The system introduced the possibility of misplaced forms and made it difficult to monitor what was happening.

The manager was concerned that there was a risk that these inspections were failing to meet the regulatory standard because they were:

- Not carried out at the time and/or date recorded on the form
- Not carried out in the location that the inspection related to
- Not routinely countersigned by an appropriate person in the management structure

Failures in the effective management of the reporting system had the potential to put people working on-site at risk. A new inspection reporting system was required that would address these issues.

In creating the system, the existing forms were used as a starting point. The individuals undertaking inspections were consulted to ensure their input and recommended improvements were incorporated into the new forms. A suite of daily, weekly, and monthly inspection forms for the buildings and structures on-site were created in Google Forms format.

The quarry supervisor created unique QR codes for each separate form. The QR codes were attached, using laminated sheets in easily accessible locations, on each item that required inspection, for example different bits of plant, the weighbridge, the workshop etc. When commencing, the inspector would go to the item to be inspected and scan the QR code, this opens the form on the device, allowing the inspector to input relevant information onto the form and submit it.

The inspector's responses automatically have a time and date stamp added to each line. The submissions are transferred automatically to a Google Sheets spreadsheet that can be shared with anyone who needs access or to counter-sign a report. Each inspection item can be reviewed on its spreadsheet, providing a full record of inspections, defect reports, and action taken or still required.

Everyone who was required to carry out inspections had the QR code reading app loaded onto their smartphone and were trained on how to use the system.

The automatically generated response spreadsheet generated by the system is shared with site management to allow for visibility and counter signing when required.

## BENEFITS

- Accurate inspections are carried out at the location and not completed remotely
- The system allows verification that inspections are being carried out at the required frequency
- Visibility of the inspection process to all relevant personnel
- More effective defect recording and reporting
- Easier to manage and track remedial actions and progress
- Better ownership of inspection process because they had input into system design
- No longer perceived as 'forms for forms sake' that will be just filed away
- All the technology used is free, readily available and integrates seamlessly (Google services)
- A safer working environment for all.

## TRANSFERABILITY AND DEVELOPMENT

- This new approach has tied together existing technologies QR codes, smartphones, Google Forms, shared spreadsheets in a way that has previously not been done at the quarry, and allows for further development in the future
- It is planned to transfer the weekly and monthly geotechnical inspections of active and non-active sites onto the system. This would include items such as the quarry faces, tips and lagoons. Google Earth images will be introduced to the inspection system, so that when the QR code is scanned, it will open a highlighted image of the quarry element to be inspected. Tapping on the highlighted element will give options of different inspections that might be associated with that element, as well as other records. For example, a lagoon QR code would open a Google Earth image with the specific lagoon highlighted, tapping on which would open a menu that might include for example inspection forms for the lagoon, the faces or slopes adjacent to the lagoon, water quality records, pump maintenance and inspection information.
- The system could be adopted or adapted by other sites and companies within the industry.

Visit [www.safequarry.com](http://www.safequarry.com) for more details or email: [info@safequarry.com](mailto:info@safequarry.com)



# 21052 Preventing unauthorized use of workshop machinery



Breedon Group **1**

## DESCRIPTION

At Breedon's Holme Hall workshop there was a problem with unauthorised access to machinery. During daily or weekly inspections, it was a common experience to find that a machine had not been isolated after a user had finished operating it. Therefore, anyone entering the workshop was able to walk over to the machine and start using it. This was a concern as operators needed to be trained and understand the safe system of work before using the machines such as the overhead crane, pillar drill, bandsaw and bench grinder.

A similar issue existed with controlling access to the lifting equipment store. Items would go missing as individuals had been able to enter and remove the equipment without authorisation, they then failed to return it. There was a combination lock on the entrance to the store but it wasn't always put back in place after an authorised individual had entered the store to collect equipment and then departed.

The problem was reviewed at a morning meeting with the team of fitters and electricians, encouraging everyone to throw ideas around to find a solution. They agreed that a new procedure or control system should be introduced. It should ensure that only an individual who been authorised by the workshop manager and had the appropriate training would be able to access and operate a machine. Once a user had completed his task on a machine, the machine should be isolated so that it would not operate. Ideally, some form of card or fob was required that would manage access to the equipment.

Following a review of various options, a Paxton card system was installed. This system enabled the workshop manager to control who could use certain machines. The system was based on 3 cards of different colours, the colour issued to an individual was based on their competence and training.

**GREEN CARD** – Access all machines (suitable for engineer with overhead crane and lifting training)

**RED CARD** – Access to overhead crane only

**AMBER CARD** – Access to workshop equipment only (bandsaw, pillar drill, bench grinder)

The system also had the capability to bar users from particular machines or all machines.

A machine will not operate unless a card is inserted into a control box located by the machine, once removed the machine will not work.

The lifting equipment stores entrance was fitted with an electro-magnet door lock, a magnet secures the door shut at a force of 1 ton, when a card is installed the magnet is released giving access to the store.

## BENEFITS

- Control of who can operate a machine
- Control over who can enter the lifting equipment store
- Gives ownership and responsibility (just like isolation), to all engineers and operators using the equipment
- Provides record of who has been using machines or accessing the store
- Improved the workshop culture and enhanced awareness of the hazards
- Incentivises employees to be trained to use machines
- Since installation, no machine found to have been left operable
- Improved control of the lifting equipment in stores
- A safer environment for all.

## TRANSFERABILITY AND DEVELOPMENT

- This system could be installed on other sites.





21080

# Safe solution for removing concrete build-up from mixer drums

Readyjet Services Ltd > Heathrow Facility **1** **5** **6**



## DESCRIPTION

Concrete mixer truck drums gradually build up a layer of hardened residual cementitious material. This reduces carrying capacity and material quality. Regular cleaning-out with water or stone can slow the process, however a build-up of hardened concrete is inevitable. Regular removal of this residual concrete is required.

Build-up leads to a heavier tare weight. The extra weight causes increased fuel usage and accelerates wear on the engine, transmission, brakes and tyres. As the build-up increases, so too is the hazard of operating over-loaded or becoming unbalanced. Braking efficiency is impeded and the likelihood of the truck over turning is significantly increased, putting the driver and other road users at risk.

Operators with overweight trucks risk prosecution. Any incidents risk a loss of reputation that will impact the haulier and the owner of the logo on the drum.

To mitigate these issues and risks, all the hardened concrete is routinely removed. This maintenance task carries a significant risk of serious injury. The standard procedure used throughout the industry is for a person to enter the confined space of the drum and use either a hammer and chisel or a jackhammer to break away the hardened concrete. These processes present direct hazards of hand or arm injury, or hand-arm vibration syndrome. The more serious hazard is the possibility of falling lumps of concrete, causing serious injury to the operator in the drum.

It is estimated that every drum requires up to 16 hours digging out, up to 4 times per year. Whilst statistics are not available, it is suspected that this activity is generating numerous near misses from falling lumps or power tool mishaps.

Readyjet Services has introduced to the UK, technology from the United States which eliminates the need for a person to enter the drum. A remote controlled, robotic high pressure water lance removes the hardened concrete. The 20,000psi water jet blasts between the hardened concrete and the drum blades to allow the concrete to drop free, giving unrivalled removal performance back to bare metal, without damaging the drum. A jet in excess of 50,000psi is required to cut steel.

Previously, the Readyjet equipment has not been viewed favourably by some UK operators due to the very high noise levels and high-water usage. Readyjet Services have addressed these issues with its new service. It has built a unit, located near Heathrow, where the robotic lance has been housed in a purpose-built workshop. Acoustic engineers were used to develop a unique compound cladding with a high level of sound insulation. The machine operates at up to 120dBA. Through excellent acoustic design the noise level outside the building is now 67dBA, that of a normal conversation.

The process water is recycled and topped up using harvested rainwater. The water tank feeds the Readyjet equipment that operates at 20,000psi using over 100 litres per minute of pure water, filtered 3 times down to 5 microns. The system for recycling and cleaning the water is very efficient.

The hardened concrete is discharged into an adjacent bay where all the water is captured in a sump and pumped back to a water treatment system. The concrete is collected by licensed waste carrier for recycling into Type 1.

The commissioning and testing of this equipment extended over 6 months to allow modifications and enhancements, incorporating feedback from both the operators and customers. The service is popular with customers because they are no longer exposing their employees or contractors to the risks associated with this task and also the operational benefits from the service.

## BENEFITS

- Eliminating confined space working
- Eliminating risk of being struck by falling object
- Eliminates manual handling risks
- Eliminating HADs
- Operator no longer required to enter the drum
- Eliminates risk of operator being injured if it turns whilst being cleaned
- Eliminates pinching, entrapment or crushing
- Achieves high quality clean without damage to drum
- Process can be completed in circa 45 minutes compared to circa 16 hours – minimizing downtime
- Maintain drum at maximum capacity, fuel efficiency and haulage rates.

## TRANSFERABILITY AND DEVELOPMENT

- Readyjet plan to roll out facilities nationwide, the next site is earmarked for Dartford, east of London. Whilst early adopters were small companies, customer base is expanding to include owner drivers, hire companies and fleet operators. Interest in the service is being shown by insurance companies.
- As clean drums reduce risk of contamination, some prestigious major projects have considered including frequent drum cleans as contractual obligations for operators.

Visit [www.safequarry.com](http://www.safequarry.com) for more details or email: [info@safequarry.com](mailto:info@safequarry.com)



# 21036 Installation of festoon type jib arm to reduce manual handling risk factors

Kilwaughter Minerals Ltd **3**



## DESCRIPTION

This improvement project was designed to reduce the manual handling risks created during the removal and subsequent reinstallation of a Rotex locker screener module during planned maintenance.

Prior to improvement works, the damaged and worn equipment was lifted using a chain block and tackle via a small gap at the edge of the building. This was a health and safety hazard, due to the circa 100kg weight of the screen bed, the height of the building, the restricted space available to pull the screen up and down, and a tapered roof restricting safe movement inside the area.

Following a detailed review of possible solutions, it was decided to use a lifting jib. The agreed solution involved increasing the height of the ceiling, fitting a bespoke festoon hoist system (rated to 1000kg) to manoeuvre the Rotex locker screen equipment into and out of position safely and securely, along with a lockable access hatch door.

During hoisting works, the access road is temporarily closed to prevent vehicular access underneath.

The SOP for the maintenance of the Rotex locker screen equipment has been updated to include the new hoist system, and the project itself has been communicated to all employees as part of our bi-annual update briefing.



## BENEFITS

- Manual handling risks significantly reduced
- Safer system for the long term maintenance of the Rotex locker screen
- Less cramped working area for monitoring of the screening process
- Demonstrated commitment to eliminate hazards from their processes
- Listened to their workforce and followed up with action
- Improved safety culture.

## TRANSFERABILITY AND DEVELOPMENT

- Following on from this installation, Kilwaughter Minerals is considering retrofitting a similar festoon system and hoist onto other manual jib arms and davitt arms
- The solution could be applied on other sites.





21076

## Safe access and egress to mixer drum using a drawbridge

Tarmac > Bridgwater Concrete **3**



Before

### DESCRIPTION

Bridgwater Concrete is a medium size ready mixed concrete unit with an 8m<sup>3</sup> Erie Strayer mixing drum. Due its design, the mixer drum requires lifting to release the materials into a discharge chute.

The drum requires washing out on a daily basis. To access the drum for washing out and other maintenance tasks, it was necessary for an individual to

stand over the discharge chute. This individual was exposed to risks associated with working at height, and slips trips and falls hazards.

The operators were consulted on how the risks associated with these tasks could be mitigated. The site came up with a plan to design and install a drawbridge system. Contractors Mages Group designed the drawbridge which consisted of a platform that could be lowered over the discharge chute with the aid of a small winch. When fully lowered there is a collapsible handrail which is raised to protect any individuals from falling off the drawbridge. Once installed and trialled, it was found to be a most effective improvement to site.

### BENEFITS

- Zero incidents when completing tasks related to the drum mixer
- Mitigated the high potential working at height hazard
- Involving the site staff in solution has helped changed behaviour
- Improved health and safety culture
- More efficient operation and maintenance of mixer drum
- A safer working environment for all

### TRANSFERABILITY AND DEVELOPMENT

- There is a more positive approach to resolving health and safety issues at this site which was recently acquired by Tarmac.



After - drawbridge lowered



After - drawbridge raised

# Safequarry.com & Safequarry App

Safequarry is the free health and safety hub for the mineral products industry.

All product sectors are covered

- Aggregates
- Asphalt
- Cement
- Contracting
- Dimension Stone
- Lime
- Masonry
- Mortar
- Precast Concrete
- Readymix
- Recycling
- Silica Sand



## Extensive library of content and information on:

Best practice including circa 400 videos	Covid Resources	Safer by Association
Toolbox Talks	'The Fatal 6'	Safer by Competence
Incident Alerts	Vision Zero	Safer by Design
Guidance from MPA, QNJAC and others	Quarries Partnership	Safer by Partnership
Public Safety	Mental Health	Safer by Sharing

Registered users receive alerts when new content is added.

# 'The Fatal 6'

- Mitigating the high consequence hazards in the Mineral Products Industry
- 94% of fatalities in the industry fall within these 6 common themes
- MPA and its members have committed to achieving a hard target of zero reportable incidents relating to 'The Fatal 6' by 2025
- A working group has been set up for each theme. They are tasked to develop resources and recommendations to help the industry eliminate the causes of 'The Fatal 6'.

**1**  
Contact  
with moving  
machinery and  
isolation

**2**  
Workplace  
transport and  
pedestrian  
interface

**3**  
Work at  
height

**4**  
Workplace  
Respirable  
Crystalline  
Silica

**5**  
Struck by  
moving or  
falling  
object

**6**  
Road Traffic  
Accidents



To find out more about 'The Fatal 6' go to [Safequarry.com](http://Safequarry.com)

# 'The Fatal 6' Award

The winner of this award is chosen by an MPA panel. Entries are reviewed from across the 8 Topic Awards that have been selected by the judges because they demonstrate the greatest potential to mitigate hazards associated with 'The Fatal 6'.

## WINNER 2021



*"FM Conway won this award for its Big Ten in 10 strategy, an outstanding development and application that takes 'The Fatal 6' concept to new levels. The company illustrated the application of the 'Big Ten in 10' approach in 6 entries that were either finalists or the winner in 4 of the topic awards. FM Conway's exceptional performance reflects all 6 of the Vision Zero values." – Chair of the MPA Panel – Chris Leese*

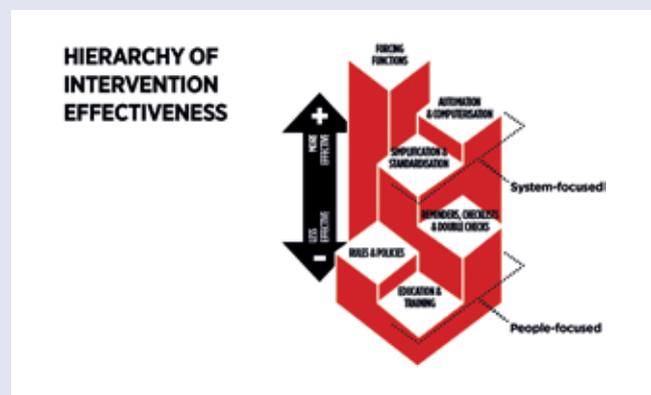
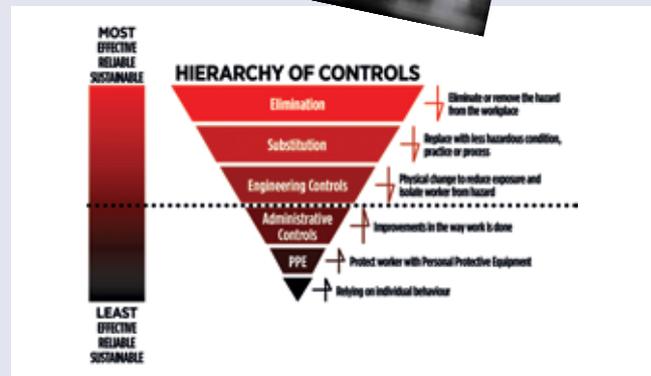


### FM Conway entries

- **Safer production – Finalist**  
Heathrow Asphalt Plant Hot RAP Modification
- **Safer maintenance and housekeeping – Finalist**  
Asphalt Drum Hydro Blasting
- **Safer maintenance and housekeeping – Finalist**  
Safer Bitumen Tank Repair
- **Safer transport and logistics – Winner**  
Sidescan
- **Safer transport and logistics – Finalist**  
Viewmatics
- **Safer together – Finalist**  
'The Big Ten in 10'
- **Eurobitume Award – Winner**

*"The FM Conway team are delighted to be recognised for our contribution in reducing the risks associated with the industry's high consequence hazards – 'The Fatal 6'. Our own Big Ten in 10 principles will continue to deliver positive outcomes for all employees, allowing people to fail safely and return home each day. It is equally important, in a period with rapid progress in technology, that we continue to share these learnings and ideas with the wider industry to eliminate 'The Fatal 6' from our industry."*

Kevin Stevens, FMC Head of SHEQ



**VISION ZERO**  
SAFE & WELL EVERY DAY

# Topic 3

# Safer handling of inbound and outbound materials



**This award covers the unloading/delivery of materials and their storage to a site such as;**

- Bitumen, fuel, aggregates or cement

**The storage of finished products and their loading for transit such as:**

- Precast products, aggregates, readymix, asphalt



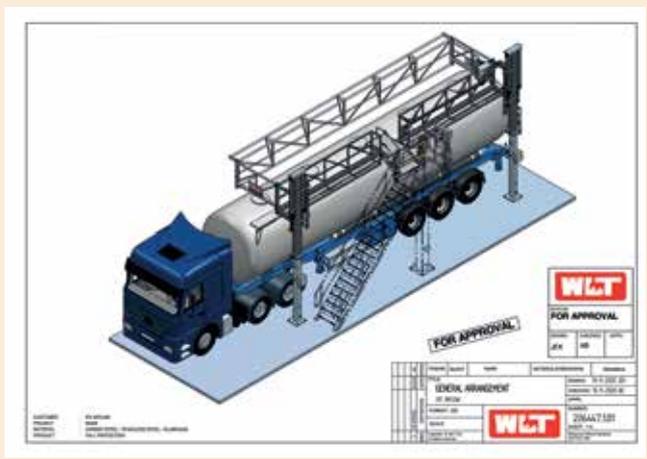
### Product testing on-site

WINNER		
<b>Imerys Aluminates Limited</b>	21033	Truck gantry for safe working at height
FINALISTS		
<b>Aggregate Industries</b>	21005	Easy tautliner loading
<b>Aggregate Industries</b>	21154	Quality inspections – wagon isolation
HIGHLY COMMENDED		
<b>Breedon</b>	21117	Loading head fall prevention
<b>Brett Landscaping</b>	21124	Lightweight tool to clear aggregate ground feed hopper blockages
<b>FM Conway</b>	21128	Asphalt lorry body spray bar system
<b>LKAB Minerals</b>	21102	Drivers de-lidding gantry
<b>Tarmac</b>	21078	Improved sampling platform for testing and inspecting materials
CERTIFICATE OF MERIT		
<b>LKAB Minerals</b>	21100	Safer use of loading ramp for both despatch team and lorry driver including the opening of container doors
<b>Breedon</b>	21118	Rail discharge whip-arrestor bracket
<b>Hanson</b>	21171	Improving palletised kerb packing



# 21033 Truck gantry for safe working at height

Imerys Aluminates Limited > West Thurrock **3**



## DESCRIPTION

In 2020, at Imerys Aluminates' West Thurrock site there was an incident where migrants were discovered inside one of their raw material tankers arriving from continental Europe. The police were called and thankfully, all were safe and well.

This event highlighted the need to inspect all incoming tankers for illegal migrants before pumping off. It also highlighted that while there was a safe system for accessing tankers and opening ports at the loading stations, it relied on drivers using their single handrail, this still exposed them to a work at height risk.

To mitigate this risk, a harness gantry system was considered. Imerys recognised that this type of system would require drivers being trained to use a harness. Many of the drivers using the site were first time visitors, did not speak English, and were unlikely to be registered on some of the existing card systems used within the industry to check what training they had. Checking whether a driver was harness trained would be very difficult. A rescue system would still be required if someone fell with a harness gantry system.

Based on the hierarchy of control, it was decided that engineering out the problem was the answer. A site project team, working with a supplier, designed and installed a pneumatic gantry that lowers around the top of the truck creating a hand railed box for the driver to work safely in. The height can be adjusted to accommodate different tanks and has a pneumatic gate at the back to allow adjustments to the length of the box for shorter tankers.

The gantry is located under a camera which allows it to be watched in the front office at all times. The system is interlocked, to ensure that the gantry is returned to the start position before exiting, avoiding the possibility of a driver attempting to leave whilst the gantry is still lowered.

Tankers can be safely accessed to inspect them, and, if any migrants were to be discovered they can be safely rescued. Drivers can install security lines safely.

The system and controls are very basic and easy to use. Drivers are escorted by one of the Imerys team to use the gantry. Training in the use of the gantry has been given to customer service and production control room staff and the yard supervisor to ensure there is a team of people on-site that are competent to move and use the gantry safely.

## BENEFITS

- The system allows Imerys employees to work safely at height
- Does not rely on PPE and harness systems, removing requirements to manage this
- Searching for and removal of unauthorised 3rd parties can be undertaken safely
- Drivers can work safely on top of their tanker
- Drivers like the system and are impressed with the installation.

## TRANSFERABILITY AND DEVELOPMENT

- The system has been shared with other Imerys sites
- System could be used at other company and industry sites.

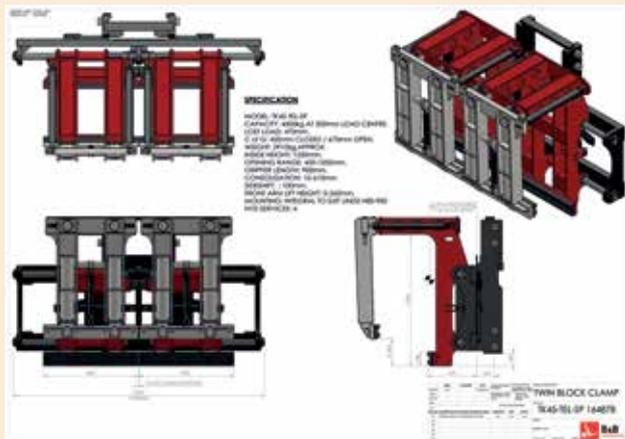




# 21005 Easy tautliner loading

Aggregate Industries > Callow Blockworks

2 3 5



### DESCRIPTION

Aggregate Industries Concrete Products Division based in Callow, wanted to improve the loading of trailers.

Loading curtain-sided vehicles, involved a time-consuming process of placing loads onto pallets and then loading by a conventional forklift. Using curtain-sided vehicles was preferred to flatbed trailers as they were more expensive, primarily because there is less scope for back haul of other goods with flatbeds.

However, the traditional, pivot style, overhead block clamp forklift truck attachment does not allow a curtain sided vehicle to be loaded. This is due to the inside height of the trailer which does not have sufficient clearance to allow the clamp to withdraw when the load has been placed in the vehicle.

AI wanted to find a solution to prevent money from being wasted on single use pallets and to ensure that they were loaded in the safest, most productive way possible. Not using pallets would lower costs, improve storage capacity, and prevent double handling of loads, ensuring that a load travels straight from the yard storage to the curtain sided vehicle. It would also eliminate the safety risk involved with moving a load on a pallet that could be unsuitable due to damage, the risks associated with additional forklift movements on-site with a bulky load on a pallet that might block the driver's view.

AI worked with a specialist attachment manufacturer to create a bespoke forklift truck attachment solution, the BlockMaster TK45-TEL. This innovative attachment has enabled block packs to be loaded without pallets onto the more readily available curtain sided vehicles.

The clamp works as a standard twin consolidating overhead block clamp, but also has the added key benefit of being able to load curtain sided vehicles. This added innovation allows its hydraulic system to work independently for each load, enabling the operator to clamp, load and withdraw easily and safely when

loading a curtain sided vehicle. The prototype clamp took some months to perfect as the hydraulics were so advanced.

Training was provided on-site to the forklift operators, by the attachment manufacturer.

### BENEFITS

- Safer loading operation
- Reduced movements on-site
- Reduced cost of haulage
- Positive feedback from operatives on clamps performance.

### TRANSFERABILITY AND DEVELOPMENT

- The clamp can be retro fitted to most forklift trucks provided they have sufficient lifting capacity.





# 21154 Quality inspections – wagon isolation

Aggregate Industries > Bardon Hill Laboratory 1 2



Technician uses button to authorise driver to go

## DESCRIPTION

Aggregate Industries Bardon Hill quarry produces over a million tonnes of asphalt per day. Between 50 to 60 trucks leave the site each day, the temperature of the asphalt load is checked by a technician using a heat probe. Prior to taking the heat measurement, the technician made contact with the driver positioned by the gantry and either asked him for his keys or indicated that he needed permission from the technician before moving on. There had been a number of incidents where the driver had moved on without permission exposing the technician to potential injury.

Following a risk assessment of the activity, it was decided to put in place a safe system of work for temperature measurement and sampling of asphalt and/or aggregates from delivery vehicles. A system was required that would ensure the person undertaking the inspection was in control, effectively isolating the delivery vehicle, prior to inspection. A team was set up to explore the most effective way to achieve this.

The solution required drivers to place their keys into an external box which then automatically locked. The technician could then safely complete the inspection knowing the vehicle could not move. Following completion, the technician would press a button, unlocking the box so that driver could recover his keys and be given a signal that it was safe to move away from the inspection gantry.

## BENEFITS

- Full control of the wagon given to the individual undertaking the testing
- Fully visible isolation system
- Eliminated risk of injury or damage due to uncontrolled movement during testing
- Improved understanding of isolation process within Aggregate Industries
- Consultation process enhanced safety culture
- A simple and cost effective system to install.

## TRANSFERSABILITY AND DEVELOPMENT

- This system is now installed throughout the Midlands and other sites throughout AI
- This task is completed on a daily basis throughout the UK both at Aggregate Industries and other sector suppliers, this system can easily be adopted at other sites across the industry.



Testing the asphalt



Drivers place keys in box



Driver collects keys when authorised to go



21117

# Loading head fall prevention

**Breedon** **3**

Safety netting in place



## DESCRIPTION

Breedon identified at its Walsall Cement depot that the gap between the loading head framework and the tank top might be wide enough for a person to fall through should they slip whilst on the top of the tank.

Although there were no near miss reports or safety observations relating to this issue, it was highlighted during a risk assessment review. This risk has a high severity potential, and given the number of loads per day, it was deemed to be unacceptable.

A specialist company suggested the use of weighted netting as a possible way to eliminate this risk. The system was first trialled on one single loading head, drivers were consulted to obtain their feedback on the system. Following the success of the trial, Breedon extended the system to its other locations.

## BENEFITS

- Personnel accessing tanker lids are 100% protected against a fall from height
- The netting remains in place at all times
- Reflects Breedon's policy to eliminate risks from its business
- Drivers see this as positive and pro-active initiative.

## TRANSFERABILITY AND DEVELOPMENT

- The system has now been introduced across Breedon's cement loading network
- It could be applied to other company sites should they have a similar configuration for the cement loading platforms to access tanker lids.



## 21124 Lightweight tool to clear aggregate ground feed hopper blockages

Brett Landscaping and Building Products > Poole

3 5

### DESCRIPTION

BLBP Poole manufactures concrete block pavers, with raw aggregate materials being delivered by 30t lorry. Each load is tipped into a drive-over feed hopper sized to hold the full load. It is transferred via an incline conveyor and shuttle conveyor into the correct storage bin ready for batch weighing into the production plant.

At times, the loads of concrete sand have a higher moisture content which prevents free-flowing and causes the sand to stick together, this results in blockages and rat-holing. Although a vibrator is fitted to the hopper, when the material is very wet it is not able to dislodge the held up sand.

To dislodge the material, personnel were required to use a heavy scaffold pole, which was passed through the man-grid over the hopper to prod the hung-up material. The scaffold pole was heavy and difficult to control, creating the potential for muscular injury. It was also very difficult to pull out of the wet sand once it had sunk in. It was also possible that the pole could be dropped through the mesh, this could damage the conveyor belt which is located circa 15 feet below. The continual use of the vibrator created loud noise levels at the hopper location whilst the operative was attempting to clear the blockage from above.

The entire yard team held a review to discuss how the clearing process could be improved. Several improvements were identified, they included the design of a bespoke lightweight tool to replace the scaffold pole. This design was fabricated by local company, Southern Technical Fabrications (STF).

The new tool was fabricated using a lightweight aluminium box section. This created a strong but lightweight tool, which was circa 4.5m in length but only weighed 15kg. It can be easily handled by one person. The design includes a plate guard fitted at a set height on the tool which prevents it ever touching the conveyor belt below or being dropped into the hopper. The plate also supports the weight of the pole on the grid whilst the operative is not lifting it up. A T-handle at the end of the grid whilst the operative is not lifting it up. A T-handle at the end of the grid whilst the operative is not lifting it up. A T-handle at the end of the grid whilst the operative is not lifting it up.

The lightweight tool can easily be lifted and manoeuvred by the handles whilst remaining at close proximity to central torso.

When not in use, it is easily stored on support hooks placed on the enclosure fencing to the incline conveyor adjacent to the aggregates ground hopper, removing the potential trip hazard created by the scaffold pole.

### BENEFITS

- Blockages can be cleared whilst minimising the risk of manual handling injuries
- Clearing blockages is less physically demanding
- Use of hopper vibrator reduced as new clearing system more efficient
- Less wear and failure of the hopper vibrator
- Eliminates risk of damaging conveyor or dropping pole into the hopper
- Eliminates risk of being hit by falling objects whilst repairing damage caused by scaffold pole
- Eliminates risk of fall from height if seeking to recover scaffold pole with grid removed
- Eliminates the trip hazard created by the scaffold pole
- More efficient operation as blockages cleared quickly
- Less vehicle queuing at site as the time to clear blockages has reduced.

### TRANSFERABILITY AND DEVELOPMENT

- This is a low-cost solution for clearing blockages caused by the intermittent problem of wet sand holding-up in ground feed hoppers. It is a solution that can be applied where there is safe access onto the tipping grid provided by the man-grids already being in place.
- This configuration is common on many sites, which are also likely to experience issues with blockages. The design is being shared across BLBP and other Brett Group divisions and can be provided to any other company.





21128

# Asphalt lorry body spray bar system

**FM Conway** 3*Spray bar fitted to body*

## DESCRIPTION

FM Conway completed a risk profiling exercise across its Transport Division. It identified that its asphalt fleet that runs 24/7 across 6 sites, carry out 458,240 working at height activities per year. Of these instances of working at height, some were due to drivers needing to access the vehicle body to lubricate in preparation for asphalt loads.

In some cases, drivers were climbing ladders whilst holding a hand pump spray bottle containing a release agent, leaving them unable to maintain three points of contact whilst ascending and descending the vehicle. This was seen as a potentially high risk activity. One of FM Conways transport supervisors, Peter French, came up with the idea of having an automated spray bar system fixed to the vehicle body that would allow the use of water as a means of lubricating the vehicle body.

The system would be operated from the ground, removing the need for the driver to access the vehicle body. An external bodywork company was contacted to review whether this could be achieved. Some plans were drawn up and presented to the Head of Transport, who agreed that a working prototype should be made. The device was fitted to a vehicle, drivers were able to see the system and provide their feedback and further improvements were made. The final version was fitted to the FM Conway fleet.

The installation of the spray bar system has tackled one of FM Conway's driver's big risk areas by providing an engineering control that has eliminated the need for drivers to climb the ladders creating the risk of a fall from height

Before the system was installed, there was the potential for any of the 60+ drivers to sustain an injury. Past LTI's have shown that FM Conway driver injuries have most commonly been from

descending ladders which have resulted in twisted and broken ankles.

## BENEFITS

- Eliminated the need for drivers to climb ladders to lubricate vehicle bodies
- Significant reduction in working at height risks
- Significant reduction in potential injuries associated with using a ladder
- Significant reduction in time to prepare vehicle for loading
- System can be used whilst driver doing pre-start checks
- Savings in the cost of the release agent formerly used
- More environmentally friendly as release agent no longer being carried in wind.

## TRANSFERABILITY AND DEVELOPMENT

- FM Conway are not aware of this system being used elsewhere. The system is being rolled out to all asphalt vehicles across FM Conway's 6 sites. This is being carried out on a running program for completion
- External hauliers that work with FM Conway have expressed an interest in adopting the system, how this can be achieved is being discussed with them. This system could be used by any company that have asphalt tipper lorries. It has the potential of being an industry standard or best practice.

*Unit that controls spray*

Visit [www.safequarry.com](http://www.safequarry.com) for more details or email: [info@safequarry.com](mailto:info@safequarry.com)



## 21102 Drivers de-lidding gantry

LKAB Minerals **3**



### DESCRIPTION

Drivers who enter LKAB Minerals site at Gurney Slade are required to undo the lids on top of their tankers before loading from silos, and secure the lid after loading. Whilst drivers have a handrail, they were still exposed to working at height risks.

A system was required that would allow drivers safer access to the top of their tanks, to eliminate the possibility of falling from height, and to prevent a lorry moving whilst the drivers were on the gantry. However, space was very limited on the site. LKAB used feedback from hauliers and others on what was used on other sites and what was best practice.

The solution was to build a gantry above the weighbridge, this prevented the loss of crucial space around site. A moveable drawbridge lowered on to the top of the tank, this also provides the driver with a safety cage, steps and a handrail. Castel lock is used to lock-off the lorry's brakes airline, the same key is then used to unlock the drawbridge to enter the top of the tank. Only when the drawbridge has been locked back off in its upright position, can a lorry be un-isolated and move off the weighbridge. LKAB gave on-site training to any drivers using the new system for the first time and a briefing was sent to hauliers informing them of the change.

### BENEFITS

- Eliminated the working at height risk for drivers undoing and locking tanker lids
- Process can be completed more efficiently and safely

### TRANSFERABILITY AND DEVELOPMENT

- Information about the new safety process has been shared throughout the LKAB All relevant info has been recorded and can be passed on to other sites within the company should they choose to adopt the idea upon their site.



## 21078 Improved sampling platform for testing and inspecting materials

Tarmac > Elstow **3**



### DESCRIPTION

The sampling platform at Tarmac's Elstow plant was very awkward to use and it was difficult for the technician to collect a sample, potentially exposing themselves to the risk of a fall from height. The maintenance team fabricated a new platform to allow safe access to vehicle bodies to take samples and test material. The new platform has two extendable sampling points that closes the gap to the vehicle bodies.

### BENEFITS

- Reduced risk of fall from height
- Easier to take samples
- Positive feedback from staff and visitors

### TRANSFERABILITY AND DEVELOPMENT

- This system could be used at other sites.



Controls for extending platform



Platform extended



Platform retracted



# Eurobitume Award

**This award is selected from all the entries submitted by MPA members that relate to the handling or processing of bitumen and activities associated with contracting/paving.**

## WINNER



The judges selected FM Conway as the winner of the Eurobitume award based on a number of high quality submissions that were finalists in either the **Safer production** or **Safer maintenance and housekeeping** topics.

The entries highlighted a number of innovative engineering solutions that FM Conway implemented to mitigate hazards associated with the maintenance of an asphalt plant, the processing of asphalt and the upgrading of a large bitumen storage tank. They are featured in the relevant topic sections of this guide.

FM Conway's "Big Ten in 10" principles were applied to all these projects.

[Heathrow Asphalt Plant Hot RAP Modification](#)

[Asphalt Drum Hydro Blasting](#)

[Safer Bitumen Tank Repair](#)



Gerard Mentor



Kevin Stevens

## Topic 4

# Safer management of pedestrians and transport on-site



This award relates to the safer management of people (employees, contractors, suppliers, customers and members of the public) and vehicles on-site. This could include:

- Site induction
- Traffic management
- Pedestrian zones
- Control systems

**VISION ZERO**  
SAFE & WELL EVERY DAY

WINNER		
<b>Acheson &amp; Glover</b>	21064	Gateway to SafeDay
FINALISTS		
<b>Hanson</b>	21167	Illuminated demarcation of pedestrian X-Points
<b>Tarmac Building Products</b>	21034	Newark VPMP Project
HIGHLY COMMENDED		
<b>Tarmac Building Products</b>	21038	Workforce-led approach to reducing vehicle hazards
<b>Sibelco</b>	21122	Dalek security system
CERTIFICATE OF MERIT		
<b>Aggregate Industries</b>	21049	Increase worker visibility
<b>D Wardle (Plant) Ltd</b>	21050	Workplace safety champions
<b>CEMEX</b>	21096	Loading shovel halo cast illumination system
<b>Leiths Scotland Ltd</b>	21104	Red warning beacon on excavator



21064

# 'Gateway to SafeDay'

**Acheson & Glover > Fivemiletown 2****Gate at crossing point**

## DESCRIPTION

Acheson & Glover's Fivemiletown site operates in a high-risk quarrying and manufacturing environment where vehicle and pedestrian interactions are frequent, presenting significant hazards. Analysis of incidents showed that 62% of its dangerous occurrences and near misses involved mobile plant, particularly forklifts, a number of these whilst loading or unloading.

The company introduced a 'Gateway to SafeDay' project to promote a positive safety culture across the site and raise awareness of the hazards associated with workplace transport among employees, customers, hauliers, and contractors. The initiative involved employees at all levels of the business.

A wide range of initiatives and actions were explored, developed, and implemented, this included:

### Improvement of employee visibility

- A change from yellow to full Hi-Vis orange increased employee visibility
- Changing facilities upgraded and moved to the entrance of the site.

### Improving pedestrian routes

- An interactive and iterative process involving all stakeholders took place to implement pedestrian routes across the site
- Physical barriers were put in place to segregate pedestrian routes from traffic routes
- Spring loaded self-closing gates were positioned at all crossing junctions
- Signage was updated across the site to highlight pedestrian routes
- Communication of the routes was delivered initially through digital (VMS) signage to alert visitors of the changes
- TV screens and toolbox talks were used to communicate improvements to employees
- Staff were empowered to address non-compliance directly.

## Initiatives to improve safety of loading and unloading

- Identifying the safest locations for loading bays
- Clearly signing and marking out loading bays
- Segregating domestic customers from hauliers and lorry loading
- On-line loading and unloading awareness sessions for employees and contractors
- Introducing rule that no loading permitted until drivers safely in their vehicles
- New barriers located at dispatch to better control vehicles entering the site
- Briefing customers on-site safety rules and route to their designated loading area.

## Forklift and mobile plant

- The forklift and mobile plant policies were reviewed and improved
- Yard SOPs were improved and trained out to operators
- All mobile plant and forklifts were fitted with pedestrian assistance lighting ensuring that a safe exclusion zone is highlighted when in operation
- Speed limiters fitted to forklifts
- High visibility red seat belts introduced to ensure that they were visibly worn
- Older forklifts with poor visibility replaced with modern fleet
- A new haul road created separating the mobile plant moving aggregate to production facilities from the main yard.

**Using the App**

Visit [www.safequarry.com](http://www.safequarry.com) for more details or email: [info@safequarry.com](mailto:info@safequarry.com)



# 21064 Gateway to SafeDay – continued

Acheson & Glover > Fivemiletown 2



## Safe Plant and Maintenance

- Mobile App introduced to improve the tracking and actioning of maintenance issues identified in daily checks and eliminating paperwork
- The App is also used for live hazard reporting.

Since the introduction of these measures there have been no incidents, near misses or dangerous occurrences involving mobile plant or pedestrians.

AG successfully gained recertification to ISO45001 in March with no non-conformances raised and the external auditor commented:

“Leadership and commitment to HSEQ is evident throughout the site. I have seen a remarkable improvement in housekeeping, traffic management, pedestrian segregation, and dust control from my visit in March 2020. This is a significant achievement considering the external challenges of 2020/2021, epitomising the commitment to continuous improvement in AG”

## BENEFITS

- Significant improvement in pedestrian safety
- Significant improvement in the safety culture on-site
- Employees feel empowered to address safety issues
- More effective reporting of defects identified in daily checks
- More effective management and resolution of defects

- Increased use of App based systems reducing paperwork
- Improved flow of traffic around site
- More efficient operation of activities on-site
- Improved housekeeping and appearance of site
- Contributed to achieving recertification to ISO45001
- Recognition by all visitors that unsafe behaviour would not be accepted
- A safer work environment for all.

## TRANSFERABILITY AND DEVELOPMENT

- AG is following a path of continuous improvement enhancing the App and introducing digital noticeboards to improve communications. These changes are now being introduced to an additional 5 AG sites
- These changes could also be applied to other sites across the industry if considered appropriate after a site-specific risk assessment.



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### What previous attendees say

*"It has been a long time since I've been in a training/ learning environment that left me thinking about the content and how I can apply it weeks after the event."*

Glenn Henry, Aggregates Operations Manager, Whitemountain

*"The course overall far outweighed my expectations and was extremely useful. I personally found a lot of value in the mix of people participating and the many open discussions where we learnt other people's experiences and models for working."*

Danielle Thorpe, Head of Marketing & Product Development, Brett Landscaping

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- £330 + VAT per person.**

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the flyer or contact Tony Entwistle.**





# 21167 Illuminated demarcation of pedestrian crossing points

Hanson > Whatley Quarry **1** **2**



## DESCRIPTION

Whatley Quarry is a 6mt, 24-hour operation with 100+ persons on-site working on a 3-shift system. The site has a variety of machines such as CAT 777 RDT's with 100t payloads and 992 FEL's with 23t buckets which use the roadways to access the workshop facilities.

Pedestrians seeking to move between the unit office and the workshop were protected by barriers and pavements until they reached the gated crossing point. The route was used by employees, contractors, and visitors. Historically, the site had no lights controlling the crossing point, the working instructions were for all traffic to give way to pedestrians. This relied on the operator being able to see the pedestrian, hand signals and gestures between these parties would be used to communicate intentions.

A set of traffic lights was introduced, and signs were removed or repositioned to improve visibility for all users. A crossing control button was added to allow pedestrians to set the traffic lights.

A working party to review further enhancements to improve the crossing was set up. It had representatives from employees at all levels and was supported by an external safety specialist. The group recommended that an illuminated demarcation system supplied by FHOSS should be installed. The system lights up the crossing point and changes colour in synchronisation with the traffic lights, ensuring the pedestrian knows when to cross and the path to follow.

The main benefit of this solution was at night when visibility is reduced and there is less expectation from mobile plant operators that pedestrians would be using the crossing.

The solution effectively operates at two different levels.

1. Although the projected illumination runs 24hrs a day, road markings and the traffic lights are the main controls ensuring pedestrian safety when visibility is good.
2. As the light and visibility diminishes and road markings become less clear, the effectiveness of the new system is enhanced. Demarcation of the footpath boundaries are clearly imaged over the existing road markings and are further enhanced by visual projected signs.

The additional benefit of the projected demarcation is that it compensates for the wear of painted markings over time and the reduced visibility due to any mud or other spillage, the projected images will always be clear on the surface.

Whilst the objectives of the initial project remit were achieved, a further 4 crossing points were identified on-site which would benefit from this technology, it was installed at these crossings.

The improvements were shared internally across the business lines, with the Health & Safety Executive and via social media.

## BENEFITS

- Improved safety for all pedestrians on-site
- Mitigates risk for pedestrians during night time operations
- Innovation applied to other crossing points on-site
- Positive impact on visitors using the site
- Improved safety culture within business
- Other organisations requesting visits to site to view
- Catalyst for considering other technology applications.

## TRANSFERABILITY AND DEVELOPMENT

- The application can be used industry wide which could have a significant impact on the safety of night-time/low visibility operations. It is also transferable to other sectors e.g., construction sites and airports. It could easily be used as emergency exit demarcation for any environment
- Hanson has also used the projection in other areas such as loadout belts for loading material into HGVs
- Hanson is now working with FHOSS to broaden the portfolio including the following:
  - Illuminated livery (FHOSS Light Livery)
  - Projection (FHOSS Cast)
  - Hard hat illumination (FHOSS illuminated cord)
  - Illuminated exclusion (FHOSS Halo).



21034

# Newark VPMP project

**Tarmac Building Products > Newark Aggregate Blocks****1 2 6****Pedestrian crossing**

## DESCRIPTION

Newark Aggregates Block plant had a complex traffic route system, with little control for incoming materials and outgoing product. There were several issues with the system that put both drivers and pedestrians at risk. A major review of the plant layout and traffic management was required. This was developed by a team lead by the new site manager including representatives from manufacturing, operations, employees from across the site and representatives from the drivers.

The development and implementation of the plan was an iterative process, with changes being further refined based on feedback after initial modifications. Some areas of particular concern were;

### Block haulier waiting area

Located on a live traffic route, hauliers would often leave their cabs putting themselves at risk. As space was limited, the waiting vehicles often stood across the entrance to the car park, severely limiting visibility for vehicles trying to enter or exit. Often, the lorries waiting were queuing past the line of TBP property.

### Tipper/tanker access to site

Tipper and tankers both accessed the site through the main site thoroughfare – passing block collection hauliers, the car park, and multiple pedestrian crossings. Some mistakenly joined the block haulier queue thinking this was the general access point to the site. The tipper and tanker drivers were required to drive through a two-way traffic system to access the aggregate yard where congestion increased the risk of collision. The access here was uncontrolled leading to risks associated with tandem tipping and collision. There was no clear ownership for the control of this area from site personnel.

### Loading areas

There were no defined loading areas in the site VPMP, creating a risk of hauliers driving to the wrong area and potential collision with production vehicles. The loading area was located close to the finished goods yard and plant take-off point resulting in the hauliers potentially interfering or colliding with mobile plant servicing these areas.

## Site signage

An audit of the signage revealed that there were too many signs, some which were obsolete and more importantly, site users found them confusing.

The following initiatives were introduced to improve site safety and address the issues highlighted

- The car park was relocated to the other side of the site entrance
- Concrete block system was introduced to car park to improve protection
- The old car park was converted into a designated waiting area separate from live traffic routes
- The two-way system was converted into a one-way traffic system
- The new route was clearly signposted as “Tipper and Tanker Lane” using motorway-style signs
- A control gate was installed at the entrance to the aggregate yard controlled by the shovel driver.
- The loading area was relocated away from the production take-off point
- Clamp trucks upgraded from 2 to 4 packs to improve efficiency of loading
- A control barrier was installed at the entrance to the loading area
- Designated loading bays were introduced to the VPMP, and lines painted onto the yard
- Clamp truck drivers were given control over their own area
- Signage updated across site including the introduction of some motorway-style
- Leaflet and briefing provided to employees on the site changes
- Hauliers were also given the leaflet and changes included in the induction pack
- New risk assessments were completed before the new system went live
- The new system was closely monitored using daily walk arounds by the manager
- Introduction of ARMCO barriers and flexible highway posts for the haulier exit lanes
- CCTV has been installed covering much of the site.

Visit [www.safequarry.com](http://www.safequarry.com) for more details or email: [info@safequarry.com](mailto:info@safequarry.com)



21034

# Newark VPMP project – continued

Tarmac Building Products > Newark Aggregate Blocks **1** **2** **6**



## BENEFITS

- Risk of pedestrians being struck by vehicles significantly reduced
- Risk of collisions between vehicles considerably reduced
- Pedestrian crossings reduced from 3 to 1.
- Improved access, visibility, and safety for users of the car park
- Mitigated risk of hauliers leaving their cabs in non-pedestrian environment
- Reduced traffic queuing – no longer extends beyond TBP property
- Loading times halved
- Hauliers restricted to production yard in the plant
- Safer and quicker access and exit for tipper and tanker drivers
- Time spent on-site by vehicles reduced by circa 50%
- Operation of yard considerably safer as now controlled by shovel driver
- All site users have greater clarity on where they should be
- Significant mitigation of the risks of collisions
- Significantly improved traffic flow – crossover points reduced from 5 to 2
- Enhanced security and control over whole site
- CRH have won a safety award for this development.

## TRANSFERABILITY AND DEVELOPMENT

- Newark is following an on-going programme of review and incremental improvements. Plans include demolition of an old mechanical workshop which will eliminate a blind spot and relocation of the weighbridge improving access and checks on-site.
- While the new layout is site specific, many of the ideas could be adapted and applied at other sites. The signposting, waiting area and minimisation of pedestrian crossings can be applied to all sites with vehicle movement.
- This best practice has been shared throughout TBP Aggregate Blocks division and has also won a CRH safety award for best practice across all CRH sites.



Improved site layout and control



New motorway style signage and improved traffic flow



21038

# Workforce-led approach to reducing vehicle hazard

Tarmac BP > Linford **2** **3** **6**



## DESCRIPTION

Following the recommissioning of one of the production facilities at its Linford Aircrete site, the uplift in production volumes led to an increase in the complexity and number of vehicle and pedestrian movements in the main stock yards – circa 50 outbound vehicles per day.

A 'hot spot' was caused by the stacking of haulage vehicles in the entrance road which had become congested, impeding traffic flows. In addition, the same area was used by drivers to prepare their vehicles pre-loading and for the strapping of loads before entering the highway.

During 2019-2020, there were several workplace incidents associated with hauliers and their activities both pre and post loading. The inefficiency of this area also led to long and unpredictable loading times.

In 2020, Tarmac Linford initiated a consultation process to review how to improve its vehicle and pedestrian management plan (VPMP) to reduce risk in these areas. Supported by the senior divisional management, the front-line supervisory team were asked to complete a consultation exercise with all key stakeholders over a 4 week period. The consultation process included representatives from loading, production, stock control, and hauliers.

Based on their feedback, a new VPMP was designed and implemented which included the following changes;

- A redesigned entrance road which segregates haulage vehicles from visitors, raw material vehicles, and traffic entering the adjoining estate
- Mobile plant moving finished product to stocking yards is separated by dedicated lanes from mobile plant loading
- A safe set of stacking lanes was introduced with improved visibility for drivers entering the stacking lanes
- New access platforms were provided to minimise working at height risks
- Relocation of the strapping and sheeting activities into a designated safe area
- Clear pedestrian walkways, crossings and passing points, and a new pedestrian crossing
- A new toilet facility and dedicated rest area.

A campaign was run to raise awareness two weeks before the new road and yard layout changes were made.

## BENEFITS

- Significantly reduced the risks of collision between vehicles, and between pedestrians and vehicles
- Positive feedback from external hauliers, loaders and stock controllers
- All pedestrians have safe routes
- Improved oversight, supervision and control of all activities
- No driver accidents since new system went live in October 2020
- Efficient layout has reduced diesel consumption by circa 5,000 litres per quarter
- Average loading times reduced from 50 minutes to 36 minutes
- Improved customer service and comfort for drivers
- Enhanced safety culture and engaged workforce
- A safer environment for all.

## TRANSFERABILITY AND DEVELOPMENT

- Two further changes are planned, a redesign of a second stock yard, and the reconfiguration of a former officer block and car park to segregate production staff cars or pedestrian movements from any haulage vehicles
- Other sites within Tarmac BP have adopted some elements of this implementation.





# 21122 Dalek Security System

Sibelco > North Park

## DESCRIPTION

Every year the industry sees fatalities involving members of the public entering quarries, lagoons and water courses. In previous years, Sibelco had seen a high level of trespass from members of the public trying to access its sites to swim during periods of warmer weather.

To try and reduce the trespass risk at Sibelco sites, a Dalek system was trialled at its North Park site to see if it had an impact on the level of trespassing, this site was known to have problems with uninvited visitors.

The Dalek system is a monitored CCTV visual and verbal system which identifies someone that is trying to access the site. It tells them to leave the site as they are being monitored and that a mobile patrol is on their way to intervene.

The pilot scheme saw a significant reduction of trespassing on the site since its installation.

Sibelco believe that this may be the solution for other member sites experiencing trespass issues.

It is a system that is already being used in other industries.

## BENEFITS

- Prevention of trespass
- Prevention of fatalities from swimming in our water sources
- Prevention of other injuries or harm to members of the public
- Early identification of attempted trespass
- Incident alarm to nominated personnel
- Quick reaction to attempted trespass area by mobile patrol
- Verbal warning to trespassers through the system.

## TRANSFERABILITY AND DEVELOPMENT

- Sibelco's ultimate aim is to use the system throughout its UK sites to reduce the trespass risk nationwide. Information about the success of the trial has been shared across all its sites
- This system could be used throughout any industry, particular on those sites that have been identified as high risk.



# Individual Recognition

These awards recognise individuals who have been nominated by their company because they have shown outstanding qualities in helping to improve the health, safety or wellbeing of their colleagues. This may have been achieved in a variety of ways.



- They have played a pivotal role in the delivery of an H&S initiative
- They made a material difference in the outcome of an incident or event
- Their achievement in obtaining qualifications or completing training in health and safety
- Their role in supporting colleagues in respect of health, safety and wellbeing
- Their willingness to share their knowledge and expertise
- Their leadership either by example or other actions
- Their behaviour reflects the H&S values in Vision Zero



# Awards sponsored by **mpqc**



# The Young Leader



# Award sponsored by **mpqc**

This award recognises the drive and energy of some of the rising stars within our industry. They have been chosen by the judges because they have been instrumental in achieving a significant improvement in health and safety within their workplace.

## JOINT WINNERS



**George Beer**  
from Wainwrights



The judges were impressed by George's outstanding work on championing safety, empowerment, and transparency. He's passionate about safety improvements and ensuring compliance for ISO accreditation. He has the professionalism to stop, challenge, monitor and then improve future safe working by implementing mid-task checks.



**Philippa O'Leary**  
from CEMEX



The judges said Philippa was fantastic during the Covid-19 Pandemic – at CEMEX's Halkyn Quarry while operating with a depleted management team. Philippa was instrumental in guiding the teams through protocols. She put in measures to ensure Covid safety and drove compliance. Philippa was the anchor and support for staff during some tough times.

*"Winning the award is amazing, I am very proud, it really has inspired me"*

## RUNNER UP



**Oliver Kibble**  
from Tarmac



Oliver impressed the judges with his positive attitude, leading from the front and approachability. In particular, the judges were impressed with his work on isolation and control at Whitwell Quarry. He's shown courage and professionalism teaching and re-training others, irrespective of their length of service.

**Other Finalists:** Stuart Peebles - Tarmac Trading Ltd, Barbara Parkes - Ibstock PLC, James Dunford - Tarmac Trading Ltd, Sarah Howarth - Aggregate Industries

## Topic 5

# Safer transport and logistics



**This award relates to improving the safety of transport from the plant to the end user/customer site. This would include:**

- Training of hauliers
- Safety devices on vehicles
- Measures to improve the safety of other road users, cars, vans, rail and waterborne transport.

SPONSORED BY



WINNER		
<b>FM Conway</b>	21132	'SideScan®Predict'
FINALISTS		
<b>Brett Aggregates Ltd</b>	21088	Safer cab to trailer suzie connection
<b>CEMEX</b>	21058	Rollover prevention programme
<b>FM Conway</b>	21147	'Viewmatics'
HIGHLY COMMENDED		
<b>Aggregate Industries</b>	21155	Driver App – simplifying life for our haulier drivers
CERTIFICATE OF MERIT		
<b>CEMEX</b>	21057	Online defensive driving training
<b>CEMEX</b>	21097	LGV cast illumination system
<b>CEMEX UK Marine Ltd</b>	21061	CEMEX UK 'Marine Fatigue Management Plan'
<b>Hopkins Concrete (Tarmac)</b>	21072	Safe mixer discharge system
<b>Tarmac Ltd</b>	21018	Effective daily vehicle pre-use checks
<b>Tarmac Building Products</b>	21037	Safe driver, safe vehicle, safe journey



21132

# Using artificial intelligence (AI) to reduce occupational road risk 'SideScan® Predict'

FM Conway **2** **6**



In cab warning system

## DESCRIPTION

FM Conway's fleet of vehicles travel over 22 million miles a year, many of which are on congested city streets. Reducing occupational road risk is therefore a key priority for FM Conway, particularly to other vulnerable road users (VRU).

There has been considerable work across the industry to reduce the risk of large vehicles coming into contact with other vehicles, pedestrians, and cyclists. Existing ultrasonic detection systems have done a tremendous job in making both the driver and VRU aware of the proximity of one another and thus reducing collisions.

However, the current systems are not predictive, but merely register the presence of a potential obstacle. This can result in false warnings, leading the driver to lack confidence in the system because they become habituated to the warning signal, potentially rendering them less effective.

Specifications such as FORS and DVS have suggested a preference for the systems to be activated all the time if technologies can reduce false positives.

The ability to predict peoples' movements or capturing the human factors when operating vehicles would be of significant benefit in further reducing the risk of fatal or life changing harm on our roads. This is challenging when one also considers that drivers and pedestrians can be unpredictable in their actions and their perception of the risk.

FM Conway's occupational road team explored whether the current advances in optical artificial intelligence could help to achieve this. They discovered that Brigade Electronics had made some significant innovations in artificially intelligent detection systems and algorithms that could predict human behaviour.

They joined forces with Brigade to undertake practical trials in the challenging environment in which their vehicles operated.

## The system

Using artificial intelligence, SideScan®Predict constantly gathers object detection data such as the speed and distance of a cyclist or other VRU from the lorry. Additional technology is embedded within the SideScan®Predict system to gather information such as the speed, direction, acceleration, and the turning rate of a vehicle.

This data feeds an algorithm created by Brigade to calculate the risk of a collision with cyclists, pedestrians, cars, or a static object. It generates visual and audible alerts to make the driver aware of potential dangers using a three-step warning system.

1. 'Moving Object Detected' – triggers a yellow visual warning but has no sound to minimise driver distraction
2. 'Danger of Collision' – yellow light and an audible warning to the driver to be vigilant e.g., triggered by a cyclist moving close to the truck
3. 'Collision Predicted' – a flashing red light and high pitch audible warning for the driver to take immediate action to avoid a collision.

The system is also always switched on when the vehicle's speed is below 22mph/30kph, regardless of the indicator selection and cannot be de-activated by the driver.

SideScan®Predict is designed for most rigid body vehicles including rigid box vehicles, tippers, mixers, coaches and buses with the only requirement that they have a minimum length of 5.2m.

The system comprises six sensors which have a detection area of 2.5m compared to other systems on the market which detect at between 1m and 1.5m.

The system has been designed so that it can be adjusted to meet variations in European standards.

## The trial

Brigade installed the system and fully briefed the drivers who were trialling the system. Over a 6 month period, the drivers provided detailed feedback to Brigade who then adjusted the set-up to enhance performance. The objective was to achieve the optimal driver effectiveness and cross reference that information by automatic data upload on a live platform.



# 21132 Using artificial intelligence (AI) to reduce occupational road risk 'SideScan® Predict'

FM Conway **2** **6**



## BENEFITS

- Potential reduction in fatalities related to pedestrians and other VRU's of 84%
- Drivers like the system and empowered by role in trial
- More accurate detection over wider area of hazardous situations
- Drivers cannot stop the system from operating at speeds below 22mph/30kmh
- Significant reduction in false alarms so more effective for drivers
- System designed to ensure that driver can always see and hear alarms when triggered
- System can be retrofitted and easily configured/tested to ensure effective operation
- Installation per machine circa 6 hours
- System has warning light to alert driver of any system failure
- Fewer incidents involving death or serious injury
- Could be widely adopted across industry.

## TRANSFERABILITY AND DEVELOPMENT

- FM Conway had the system fitted to 10 vehicles and plans to expand this across the fleet. It is now specified as a minimum requirement in FM Conway's Fleet Operator Scheme.
- As the system is designed so that it can be fitted to a full range of HGV rigid vehicles from tippers to concrete mixer trucks it could be widely adopted within the industry and, of course, to delivery vehicles in other sectors.
- A potential development will be to integrate this system with another that uses AI and optical cameras to monitor driving techniques and other distractions within the cab.





## 21147 Use of AI in reducing occupational road risk 'Viewmatics'

FM Conway **2** **6**



### DESCRIPTION

A key issue in many road traffic incidents are the bad habits that are formed during driving and the in-cab distractions that can affect people's concentration in anticipating the hazard zones and consequently reaction times.

They reviewed intelligent, optical cameras using rule-based algorithms that are incorporated into systems to spot illegal or suspicious activities. This technology can be applied to identify undesirable activities when driving such as tailgating, or a failure to signal when carrying out a left turn in a vehicle. When identified a message can be sent or action taken to prevent an incident occurring.

FM Conway also wanted to have near misses reported to them automatically so that they could be fed directly into their corporate dashboards. This would enable them to set some meaningful leading indicators for occupational road risk, one of their Big Ten in 10. An example of the leading indicators that could be applied using this approach are:

- All drivers are indicating when making a left turn
- No drivers are tailgating
- All drivers are fully focussed on the road.

A system was identified that was capable of delivering this with some modifications to the algorithm and the addition of an automated reporting system, called Fast View 360.

Fast View 360 used a combination of a driver facing camera in the cab and a forward facing camera showing the road. The system has the capability to capture data and process information almost instantaneously. They also integrated their current vehicle hardware telematics with the camera system. 3G/4G connectivity was achieved through a package called Auto CMS, this solution enabled everything to be accessed from one location, a central platform

Trials were run with Fastview in a variety of different vehicles. The rules they developed were focussed on improving driver safety and the protection of other vulnerable road users. Examples of these are.

- The generation of alerts when someone used a portable device such as a mobile phone in the cab
- Linking the use of the left-hand indicator with actual operation of the vehicle.

FM Conway was able to play back to drivers recorded footage of their undesirable behaviour to assist with their understanding of how they were driving. The purpose was to attempt to modify the human factors that influenced their decision making whilst driving. The initial results captured by the system were both astounding and disturbing. The communication with drivers about the introduction of the system needed to be handled carefully,

as it was perceived by some as intrusive. When consulting with drivers on the new systems.

- 60% of drivers felt that it would be useful to exonerate them should an accident occur.
- But 20% had an issue seen as an invasion of their privacy.

FM Conway recognise that working with drivers to alleviate their fears, gaining trust and demonstrating its ability to prevent accidents will continue to win hearts and minds. The quality of the system during the trial was excellent with minimal false alarms, reliable recording of data and good connectivity. They envisage that it will allow them to take some bigger steps in reducing their occupational road risk in the future.

### BENEFITS

- Estimated risk reduction of circa 45% of a fatal or life changing harm occurring
- 80% improvement in driver behaviour
- 27% decrease in personal injury claims
- 25% improvement in fuel efficiency and consequently carbon reduction
- Video footage of both driving incidents and unloading etc
- Video recordings of near misses
- FM Conway able to understand risk profile in the business
- Drivers have evidence to prove when others were at fault
- The system is easy to use
- Assists in driver training
- FM Conway will meet the higher DVS standard required by TfL in 2024
- Enhances fleet management and live tracking.

### TRANSFERABILITY AND DEVELOPMENT

- FM Conway is specifying the system as a standard requirement in all its vehicles as part of its drive to reduce occupational road risk
- FM Conway intends to integrate the telematic data with the side scan system to further enhance their ability to analyse drivers actions and behaviour
- Data from the system will be used to assist with progressing drivers from Bronze to Gold awards
- It is intended to introduce this system to mobile plant where further significant benefits will be achieved
- This system can be fitted to any vehicle and could be widely adopted throughout the industry.

Visit [www.safequarry.com](http://www.safequarry.com) for more details or email: [info@safequarry.com](mailto:info@safequarry.com)

21058 **Rollover prevention programme video**CEMEX UK **6****DESCRIPTION**

CEMEX operates a variety of large goods vehicles to deliver their products – concrete mixers, aggregate tippers, bulk powder tankers and vehicles for concrete products and packed cement. All these vehicles can be prone to rollover under certain conditions which can have devastating consequences.

In recognition of this issue, they produced several safety initiatives including films for the industry about rollovers; the last was a campaign predominantly aimed at rollovers of tipping vehicles.

Building on these resources further, it was decided to create a new video. Although they had experienced several serious concrete mixer rollovers resulting in fatalities, this video was to address the factors that could be applied to all vehicles, this included weather conditions, soft verges, centre of gravity, stability of loads, speed, driver distractions and many more. It is normally the adverse combination of more than one of these factors that creates a high probability that a vehicle will rollover.

Vehicle rollovers were analysed including numbers, the vehicle type, the load, and the road conditions. This exercise was completed for rollovers involving its own fleet, for franchisees and contractors. Drivers were interviewed as part of the root cause analysis of each incident. Driver trainers were consulted as part of the 'design' stage of the programme.

Although initially planned as UK campaign, it quickly turned into a regional campaign to cover Europe, Middle East, and Africa (EMEA).

The short, 10-minute film was translated into 9 different languages and used graphics that could be understood regardless of language. As CEMEX drivers have tablets, it was relatively easy to ensure that the film could be cascaded down to its drivers.

The video was shared with the MPA, has become the basis of a new MPQC module and can be easily accessed via YouTube

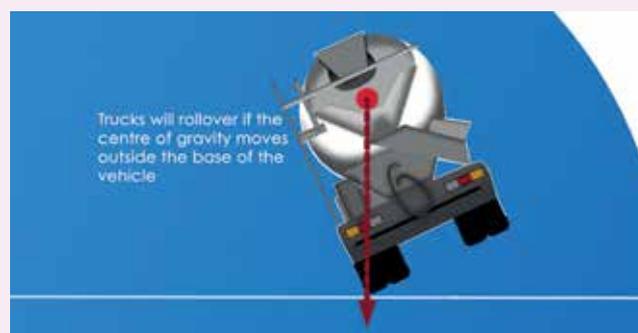
<https://www.youtube.com/watch?v=1zeGPaj-jk>

**BENEFITS**

- Reduction in rollovers in all vehicle types within CEMEX
- The format makes it easy to translate into any language
- Captures the attention of drivers without being too arduous
- MPQC have used this as a base for a rollover package.

**TRANSFERABILITY AND DEVELOPMENT**

- When the MP Connect card is fully implemented within CEMEX, it will be made mandatory for all drivers to watch.
- The film is applicable for all types of large goods vehicles operating both within the mineral products industry and other sectors. CEMEX has made the video easily accessible by placing it on YouTube. Many drivers will become familiar with it as they take the MPQC courses which are available online.





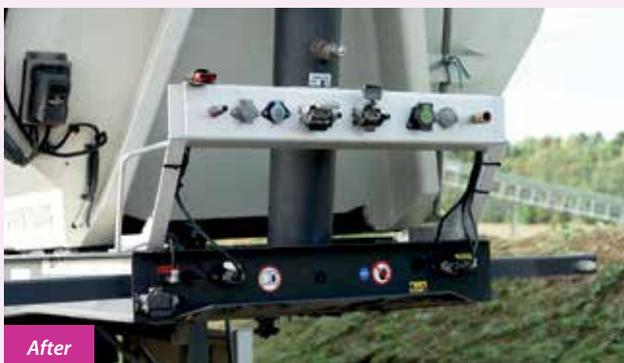
21088

## Safer cab to trailer Suzie connections on artic trailers

Brett Aggregates > Transport **3**



Before



After

### DESCRIPTION

A driver at Brett Aggregates had reported an injury whilst completing the Suzie connections between an artic trailer and the cab. In consultation with other drivers during the investigation of this incident, it became apparent that this was an issue that could be repeated. There were two main areas of concern.

The Suzie connections are low down on the bottom of the artic trailer, sitting within the cross members at the same height as the chassis. Significant force is needed to be manually applied to complete the connection. It was not uncommon for drivers to bend over and push force the connections together. This put them at risk of a manual handling injury.

In completing the operation, the driver is straddled across two separate foot plates between the cab and trailer. There is the potential for the driver to slip off the plates, jam a limb between the two plates or fall from the plates to the ground. The distance between the plates and the ground is 1.3m, representing a significant fall from height hazard.

A team was formed to find an engineering solution to reduce, as far as practically possible, the potential for an injury whilst making the Suzie connections. In consultation with a fabricator, a new bracket was designed and trialled successfully. This

enables the drivers to adopt a much improved steady and stable stance to exert the required force to overcome the 12-bar back pressure. Bending and twisting is no longer required to make the connections.

The driver who trialled it was happy with how well it worked and how much easier it was to make the Suzie connections at hip height as opposed to ankle height.

### BENEFITS

- Risk of a fall from height much reduced
- Risk of a manual handling injury much reduced
- Risk that driver will stumble or overbalance much reduced
- Drivers and operators more likely to share and report safety concerns following this experience
- Highlighted the company's unwillingness to accept unsafe working condition
- Changeover of cabs is a swifter, simpler and safer process.

### TRANSFERABILITY AND DEVELOPMENT

- Brett will implement this change on all its trailers
- This modification could be used on any HGV trailer, it is simple and cost effective to install. This innovation will be shared more widely with the industry.



Completing Suzie connection



# 21155 Driver App – simplifying life for our haulier drivers

Aggregate Industries **2** **6**

## DESCRIPTION

Aggregate Industries utilises a very large fleet to deliver the wide range of products that the company produces. This fleet includes over 1,000 franchise and regular haulier vehicles, with around 3,000 drivers, across 200 sites.

In addition to this, Aggregate Industries works with over 1,000 external hauliers, responsible for around a further 5,000 drivers. With a fleet this size, it is a considerable challenge to ensure that each driver has all the support, training, and tools they need to do the best job they can on behalf of Aggregate Industries.

Aggregate Industries have developed an App to facilitate this. The process began when the Logistics team were assessing the best way to report near misses. They had found that, although the traditional chain of reporting to the haulier and then to Aggregate Industries did work, the existing method was convoluted and needed simplifying.

The team began looking into third party applications which would collate the reports and make them instantly accessible to the logistics team. They were deterred by the high costs and the concern that the lack of guaranteed take-up by drivers could impact on the ability to achieve a streamlined solution.

It was then recognised that one platform all businesses, hauliers and drivers have access to is Google. The same impact and reporting that the third party applications offered could be achieved through effective use of the Google suite.

As the team began developing the near miss reporting system, it became obvious that the tool could be used for more than just this. It could be used for training cascade and resource hosting. The platform has evolved into what is now known as the Driver App.

Hauliers have been consulted throughout its development, and logistics team still consider it to be work in progress as more is added.

Over 50% of Aggregate Industries' hauliers have accessed it, and it has become instrumental in instilling a consistent, stringent safety culture across all Aggregate Industries' haulier drivers.

It continues to be developed in conjunction with individual regional and departmental teams. For example, in the South West, site inductions have been made virtual due to COVID, and hauliers in the region are utilising the App to complete the induction pro-actively.

Ultimately, the development of this App has utilised cross-company collaboration, as well as consultation with their drivers, to develop a platform that puts the onus on the driver to deliver great service, be able to report problems and spread a culture of confidence and compliance.

## BENEFITS

- Safer, better informed and better trained drivers
- Collaboration between Aggregate Industries and the drivers
- A single reference point for drivers
- Change in attitudes, styles and the way drivers work
- Increasing driver accountability over the long-term and promoting pride in their work.
- Greatly improved management of near misses which allows us to:
  - Act upon safety concerns much more quickly
  - Tailor training materials to problem areas
  - Use resources like eToTS to ensure compliance.
- Drivers now have an instantly available first port of call
- Drastically reduced the need to cascade information to hauliers
- Improved rates of compliance as resources easily accessible e.g.
  - Hours sheets
  - Compulsory training modules
  - Site inductions are all available at the driver's fingertips through the App
  - The App is liked by the drivers.

## TRANSFERABILITY AND DEVELOPMENT

- Aggregate Industries sees the potential of the Driver App as practically limitless. Its development is completely fluid, and it is changed as and when it is necessary, its easy-to-use format enabling this
- In the short term, the Logistics team is looking into online tools to advise on re-torquing wheels, while it is currently pushing positive driver safety initiatives such as the DSRP league table based on Navman telematics, which result in high performing hauliers and drivers being rewarded
- In the long term, Aggregate Industries sees the App as absolutely transferable to any organisation provided they utilise Google, and can be tailored to suit their own individual training programs, reporting methods and document libraries.

# Topic 6

# Safer operations at a contracting, construction or customer site



### This award relates to:

- The safer unloading, storage or handling of products at a customer/end user site
- The delivery of services at a customer or construction site including on the highway. This would include entries relating to contracting, laying and installation of precast products.



WINNER		
<b>Invisible Connections Ltd</b>	21055	Telescopic connectors
FINALISTS		
<b>Acheson &amp; Glover</b>	21095	Machine install Anchor Vertica®
<b>FM Conway</b>	21129	Taking the strain out of manual handling





# 21055 Telescopic connectors for stairs and landings

Invisible Connections Ltd

3 4 5



## DESCRIPTION

The tradition of post-fixing steel support angles, to support precast stair landings, involves erecting a platform, drilling a large number of holes into the core wall and then using the crane to manoeuvre a heavy steel angle into position before site operatives fix it securely to the wall. This process is repeated at the other end of the landing before the landing and stairs can be installed. The entire process is repeated before each landing can be installed.

Operatives installing stairs and landings are therefore exposed to range of potential hazards such as fall from height, being struck by falling objects, exposure to dust, vibration, noise and trip hazards. The work is very time consuming and physically demanding, increasing the risk of fatigue.

Invisible Connections has developed a system for the installation of precast stairways and landings that significantly reduces these risks based on telescopic connectors.

Telescopic connectors structurally support the landings, off the core walls, without the need for steel support angles. Therefore, drilling is eliminated from the installation process, as is the use of a platform or the manoeuvring of heavy items by the crane (except for the landing itself). Also, no tools or power supply are required.

The connectors are deployed into wall recesses (part of the system of supply) which provide generous fixing tolerance. The connectors and wall recesses are grout-filled by a site operative, working on the top of the flat level landing, where they are harnessed to the core wall, or contained within the edge-protected landing.

The process is much simpler to manage on-site and requires fewer crane operations, improving overall site safety.

Presentations are regularly given to Architects and Structural Engineers to educate them about the safety benefits of the products, highlighting the CDM regulations' emphasis on designing out risk.

## BENEFITS

- Reduced risk of fall from height
- Reduced risk of being struck by falling objects
- Eliminates risk associated with exposure to dust
- Elimination of risks associated with vibration
- Elimination of risks associated with noises
- Installation is much less physically demanding on the site operatives
- The installation process is also significantly de-skilled, resulting in far fewer things able to go wrong

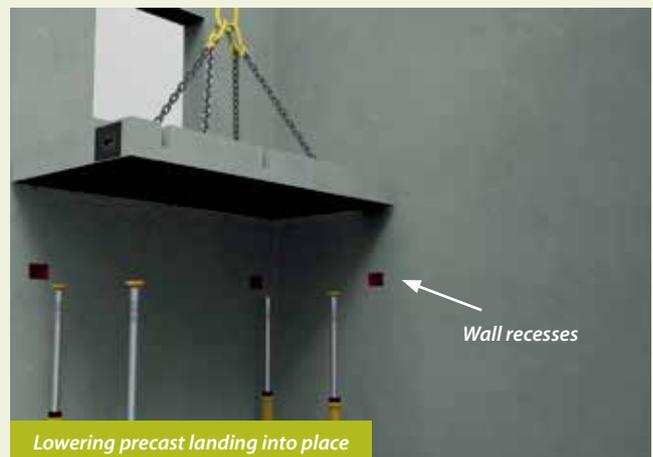
- Landings and stairs take a fraction of the time to install
- Facilitates earlier use of the cores for general access around site
  - This negates the need for using narrow and steep temporary stairs or ladders
- Improved structural safety using telescopic connectors
- Increases the appeal of precast concrete construction.

## TRANSFERABILITY AND DEVELOPMENT

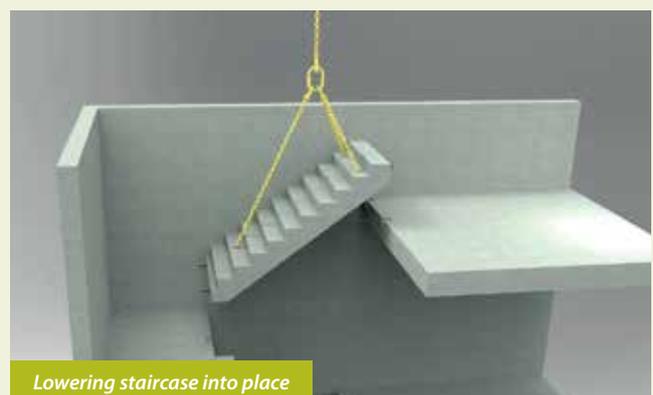
- The system can be widely adopted by the construction industry.



Telescopic connectors



Lowering precast landing into place



Lowering staircase into place



21095

## Machine install Anchor Vertica®

**Acheson & Glover****3****5**

### DESCRIPTION

Acheson & Glover have developed a new system for the construction of retaining walls. The machine install clamp and installation approach was developed because it was recognised that the construction of retaining walls, especially those that were large in height and being installed in narrow spaces, exposed builders to significant manual handling risks in the manipulation of blocks and often exposure to working at height risks.

The new Vertica® blocks can be quickly and efficiently moved from pallet to wall with minimal intervention – reducing build times and labour requirements and delivering a safer working environment. This is a market first for the UK & Ireland and part of a wider strategy to harness technology. Anchor Vertica® is fully compatible with on-site machine installation, and with enhanced factory-installed geosynthetic reinforcement, it not only tackles difficult installation areas such as steep, sloping hillsides, but also Anchor Vertica® blocks meet and surpass industry standards for strength and durability.

### BENEFITS

- Won 'Housebuilders' Health and Safety Product of the Year 2020
- Reduced risk of manual handling injuries associated with block lifting
- Reduced need for builders to work at height
- Faster and more efficient build
- Walls can be built to almost any height
- Building possible in tighter spaces
- Reduced downtime due to weather, as no mortar required
- Reduced excavation and land loss
- Popular with housebuilders and groundworkers
- A safer working environment for all.

### TRANSFERABILITY AND DEVELOPMENT

- Using technology that is unique to the UK and Ireland, the AG machine install clamp and building blocks could be widely adopted within the industry to make the construction of retaining walls a considerably safer activity.

*Images of machine clamp in action*



# 21129 Taking the strain out of manual handling

FM Conway



## DESCRIPTION

FM Conway had identified the manual handling of slabs as one of the key activities to focus on when applying its Big Risk principles. Many slabs weigh between 70kg and 90kg and some larger York stone slabs in London weigh 120kg, these require a minimum of a 2man lift. There are 80 people in FM Conway that regularly lay slabs over the course of the year, a very physical task that exposes operatives to the possibility of manual handling injuries.

A team was formed to come up with a solution that would engineer out the occupational health risk of manual handling when lifting and laying precast and dimension stone natural slabs. A review was carried out of all the activities involved in laying slabs with the operatives who had been involved in previous projects. The objective was to find a mechanised solution that would eliminate the need to manual handle a variety of weights and physical size slabs. The team searched through previous best practice on this topic but could not find anything specific that would alleviate the problem.

They wondered if vacuum lifters that were used for lifting bags of cement and other mineral products could be used to lift slabs. The team contacted a specialist who had a long history of solving manual handling problems in the industry. They wanted a machine that could be used in a variety of applications, large open areas, pathways on bridges or small walk-throughs approximately 1 to 2m in width. Two items of equipment were identified that could be used to mechanise the slab laying process.

For large areas that could be closed off, a machine which had previously been used for laying kerb stones was selected. This machine, the Transmobil, would need a change of attachment with a vacuum lifter capable of lifting a slab with uneven/riven natural stone and engineered precast stone of various weights. Some modifications were made to the seals and the vacuum pressures to accommodate these requirements.

The second solution was another kerb lifting device that could be used in tight spaces. This also required modifications which included changes to its pivot points, handle lengths, and modifications to the bracket that would hold the slab. This provided a device that prevented the need for handling the slab off the ground.

Both these modified devices were trialled on a major project, the relaying of the slabs on London Bridge.

This project required all its paving to be lifted and replaced or re-laid after some construction modifications or general repairs. This was a monumental task involving over 2,200m<sup>2</sup> of paving, it tested the manual handling equipment to its fullest extent, The trial was a major success with the teams lifting and laying over 450m<sup>2</sup> over a 21-day period, with a reduction of over 2000 manual handling operations many of them 2 person lifts.

## BENEFITS

- FM Conway calculated over 80% reduction in manual handling risk for the project
- No manual handling injuries on the project
- Significantly improved efficiency of process
- Project completed 10 days ahead of schedule
- Excellent example of Big 10 principle being applied
- In future laying paving will be less physically demanding
- Significant reduction in exposure to manual handling risk
- Employees motivated to find other solutions to H&S issues.

## TRANSFERABILITY AND DEVELOPMENT

- The development of the transmobil is only limited by the variation in the accessory that attaches itself to the product, it is readily transferable to lift many other precast or natural stone products into positions
- FM Conway have already purchased 161 donkey lifters, the transmobil is hired in with the special attachment for the larger projects, it is planning to purchase its own set up
- FM Conway is also working with MPA members who pack and deliver products, to see if manual handling can be further reduced and the risk of loads moving is minimised.



Before



After



After

# Safer by Design

**Safer by Design is the campaign to ensure that health and safety is built into the core design of the mobile and fixed plant used in the mineral products industry.**

The health and safety features recommended in the Safer by Design module on Safequarry.com for mobile plant will eliminate or mitigate the high consequence hazards associated with 'The Fatal 6'.

The recommendations have been prepared by a cross industry working group of health and safety specialists. Please go to **www.safequarry.com** to:

- **Review** key safety features listed for all mobile plant commonly used within the industry
- **Specify** – the Safer by Design health and safety features when ordering new plant
- **Audit** – existing plant to check how well it meets Safer by Design recommendations

**safer by design**

[ SafeQuarry | about | Register | My Reports | Contact Us | Log in ]

**Safer by Design**

This website has been developed to provide anyone responsible for the operation or maintenance of mobile plant with information on the essential health and safety features that should be incorporated on different type of plant. To find out more about Safer by Design please watch the video... [PLAY VIDEO](#)

The Safer by Design health and safety features will eliminate or mitigate the high consequence hazards associated with 'The Fatal 6'

The Fatal 6	Review	Specify	Audit
1 Contact with moving machinery and equipment			
2 Mobile transport and position changes			
3 Work at height			
4 Unstable equipment / unstable loads			
5 Struck by moving or falling object			
6 Road traffic accidents			

Please select what you would like to do

**REVIEW**  
SBD recommendations by plant type

**SPECIFY**  
SBD specifications for new plant

**AUDIT**  
SBD audit for existing plant

Sharing health and safety resources helps us all work towards Zero Harm

Mineral Products Association, Colingrain House, 20-41 Colingrain Street, London SW1V 3JG, Tel: 0207 8392000 Email: [info@mineralproducts.org](mailto:info@mineralproducts.org)



# Topic 7

# Safer through improvements in health and wellbeing



**This award relates to initiatives that improve the health and wellbeing of people, this could be at a specific site, within a division, or a company-wide initiative. This could include:**

- Management of mental health, diet, fitness, medicals
- Management of hazards such as dust, chemicals, HAVs or noise, if not more appropriately covered in an earlier topic

SPONSORED BY



WINNER		
<b>Tarmac Ltd</b>	21019	Creation of an Occupational Health and Wellbeing Learning (OHWB) Centre at "The Park"
FINALISTS		
<b>Aggregate Industries (Multiple)</b>	21150	Live PM10 monitoring
<b>Breedon GB Materials</b>	21116	Chromate identification and quantification
<b>Hanson</b>	21175	Three concurrent cement works shutdowns during Covid
HIGHLY COMMENDED		
<b>Aggregate Industries</b>	21046	'Healthy You' – because healthier people are safer people
<b>Marshalls Plc</b>	21196	Marshalls Supporting Healthy Minds
<b>CEMEX</b>	21056	Mental health and wellbeing
CERTIFICATE OF MERIT		
<b>Tarmac Building Products</b>	21026	Dust management information system
<b>LKAB Minerals Ltd</b>	21044	Taking the weight off – eliminating manual handling injuries at LKAB Minerals
<b>John Wainwright &amp; Co Ltd</b>	21106	Health and welfare of employees and public
<b>Marshalls PLC</b>	21183	Returning to the office, safely!



21019

# Creation of an Occupational Health and Wellbeing (OHWB) Learning Centre at 'The Park'



Tarmac **1** **2** **3** **4** **5** **6**



Phil Bason, Health Manager

## DESCRIPTION

In February 2020, Tarmac opened its National Skills & Safety Park. This is a dedicated learning facility that has been set up as part of an operational site. New operators are able to gain hands-on practical experience and training relating to the different areas of Tarmac's business.

The site is home to Tarmac's operational inductions, the professional operator development programme and training in both technical skills and behavioural safety.

In the UK, there has been a year-on-year increase in reported cases of work-related ill health and stress cases, these now significantly outweigh the number of non-fatal injuries reported. Tarmac recognised that increasing the education and awareness of its employees about occupational health and wellbeing, would make an important contribution in achieving good health and safety management within its business.

Therefore, the Park includes a dedicated building to focus on educating employees in occupational health and wellbeing. The facility is built into 6 health zones. Learners move between the zones to gain knowledge and experience associated with these areas. The zones are

- 1. Sight**
- 2. Hearing**
- 3. Inhalation**
- 4. Body**
- 5. Wellbeing**
- 6. 'Saving Steve'**

The sight, hearing, inhalation and body sections educate the employees on the how damage can occur through exposure to different types of materials (including silica and dust), chemicals, noise and vibration. Additionally, different types of control measures are explored including available personal protection.

The wellbeing zone introduces a series of Tarmac produced webinars and podcasts that cover the importance of supporting colleagues through conversations using the principles of 'start the conversation'. This gets people thinking and talking about mental health. The webinars feature conversations with colleagues about their experiences with some of the issues being discussed, such as mental health, physical health, and drug and alcohol misuse.

The sixth zone, 'Saving Steve', is a uniquely created, virtual reality, interactive simulation game. The game is based on a fictional mineral products employee named Steve. His choices when carrying out tasks at work have resulted in him being confined to a wheelchair and being dependent on oxygen to breathe. The simulation shows Steve carrying out various tasks during his career. The game asks the learner about the choices Steve should make and the outcomes of those choices on his wellbeing. The learner is scored on the choices made and recognises the impact of the decisions made. The aim of the game is to get Steve to be fit and healthy at his 60th birthday party.

The ultimate goals of the occupational health module, which was created by the learning and development team at Tarmac, are detailed below.

- Awareness of the common occupational health hazards on Tarmac sites and identify how they can and should be managed
- Reinforcement of the risk assessment process and learn how to prevent accidents, injuries and ill health
- Gain a better understanding of the Health and Safety at Work Act, other health and safety legislation and the responsibilities placed upon us
- Introduction to mental health awareness, key facts and the importance of managing this effectively.

The module is delivered to employees at the National Skills & Safety Park and across the whole business. The National Skills & Safety Park has a target of engaging 3000 employees in occupational and mental health over the next 2 years. COVID 19 restrictions have led to some modules being delivered on-line.

Tarmac has recognised the importance of having an inclusive learning environment and have identified employees who require additional support. This area is able to provide learners, particularly those with special educational needs and disabilities, with additional support adjusted to their needs.

Visit [www.safequarry.com](http://www.safequarry.com) for more details or email: [info@safequarry.com](mailto:info@safequarry.com)



# 21019 Creation of an Occupational Health and Wellbeing (OHWB) Learning Centre at "The Park" – continued



Tarmac **1 2 3 4 5 6**

## BENEFITS

- To date, 850 employees have received occupational health training
- 1200 employees have attended "start the conversation" workshops
- Virtual classrooms delivery is interactive and impactful
- Delivery of training is consistent but supports the learning needs of employees
- Supports the roll out of Mates in Mind "manage the conversation" line managers
- Supports the roll out of mental health first aiders across Tarmac
- Significantly increased awareness in occupational health and wellbeing
- Increased openness about mental health issues across Tarmac
- Employees more willing to request support
- Dedicated facility to provide training and develop technical skills
- Helps employees adopt safe behaviours
- Greater awareness of health hazards and protection/control measures
- A safer environment for all.

## TRANSFERABILITY AND DEVELOPMENT

- The approach of increasing education in health and wellbeing and making this available to all employees is transferable to the industry and other sectors
- This approach has adopted more inclusive learning practices and has helped to provide additional support to employees with SEND. Virtual reality simulation and gamification is also transferable. The use of virtual reality and gamification for learning has significant benefits, providing an immersive experience and in a safe environment. The simulation is planned to be demonstrated at Hillhead
- Tarmac has the motto 'Work Safe, Home Safe'. Through its training programme, it is seeking to transfer safe behaviours to the home environment as well as at work.



Body zone



Saving Steve video



The sight zone

# MPA Special Award

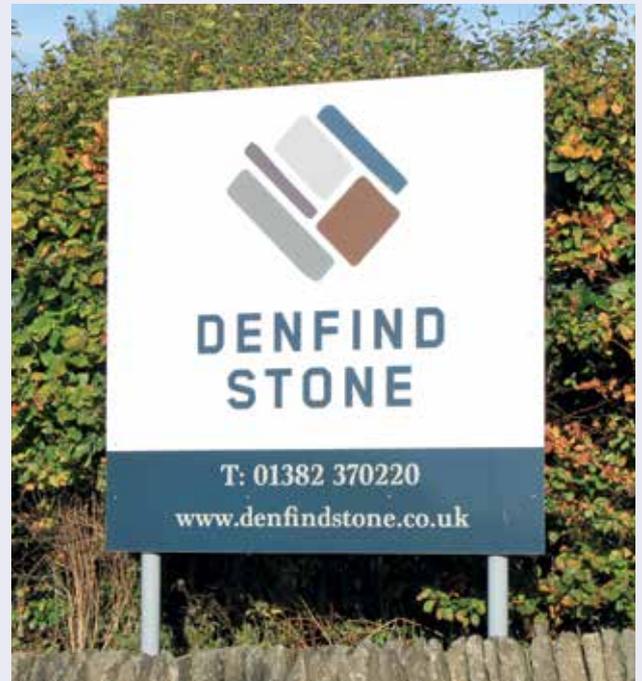
## Denfind Stone

- a family business with 16 employees

*“What impressed the judges was how Denfind Stone have embraced a programme of continuous improvements and investment to tackle – RCS reduction, pedestrian and transport management, and to eliminate machinery entrapment with a robust Isolation and lock off programme.*

*All these initiatives were aimed at eliminating or mitigating hazards associated with ‘The Fatal 6’ from its business.”*

*Chris Leese – MPA Chair of judges*





# 21150 Live PM10 monitoring

Aggregate Industries > Bardon Hill Quarry **4**



## DESCRIPTION

Bardon Hill is a large quarry and asphalt operation that monitors and controls exposure to RCS for its workforce and a large residential area situated on its boundary in the direction of prevailing winds.

The site monitors RCS levels using static monitoring in production buildings, and personnel dosing meters, and also has an array of static PM10 monitors at properties just over the boundary. However, the results of the monitors were always retrospective, and so although Aggregate Industries could see the value of PM10, it could not necessarily pinpoint the cause accurately enough to do anything about it.

Using the philosophy of "if you can measure, it you can manage it" they looked for equipment that could accurately measure dust levels in real time.

A unit was identified that could be installed alongside the standard PM10 monitors and would feed information live to an online portal. The unit has set points just below the boundary limits and can e-mail the dust team/management team if there is a spot breach of this limit, allowing action to be taken to limit emissions.

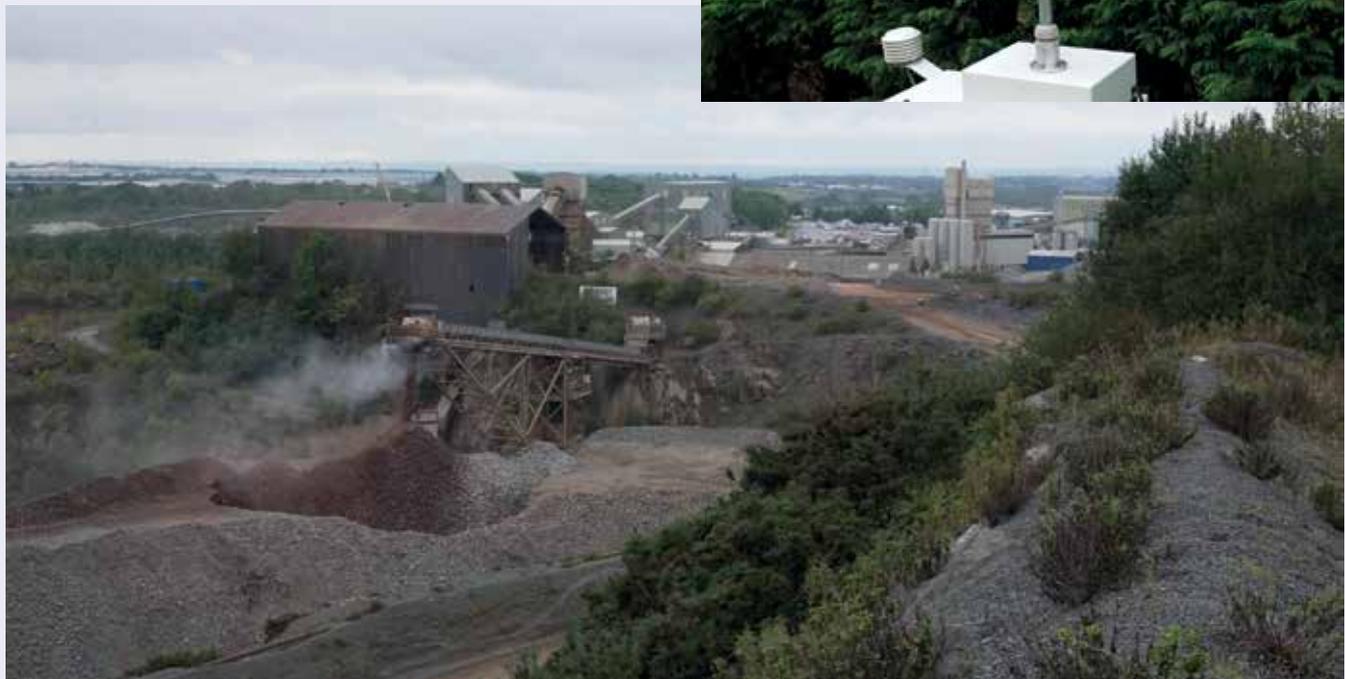
In addition, a recorded CCTV system monitors the site from its highest vantage point. This is used to review the operation at the time when dust levels were elevated so a possible root cause can be identified. To provide additional data, a weather station was set up on-site and recorded the weather conditions, this data is also fed to an online portal. This allows wind direction/speed in combination with the dust information to be looked at to help them better manage the overall process.

## BENEFITS

- Greater clarity and understanding of PM10 performance
- Visible dust associated with quarries is easier to spot and to control
- Technology supports the control of less visible RCS and PM10's
- Live data has improved operative's awareness of RCS
- Greater worker involvement in finding ways to reduce emissions of dust
- More effective management of emission reduces risk to workforce
- Better management of environment to benefit of all.

## TRANSFERABILITY AND DEVELOPMENT

- The equipment is available to the industry, and the protocol to use them in a combined way is easy to share
- Using this equipment is having a positive effect on the boundary PM10 and internal RCS levels by raising the awareness across the workforce.





21116

## Chromate identification & quantification video

Breedon GB Materials > Hope Cement Works



Chromium VI deposit

### DESCRIPTION

MPA Cement H&S committee shared research throughout Europe that found that increasing use of high-alloy steels in the clinker burning process has led to the formation of chromate on components and coatings in kiln installations.

In certain circumstances chromate can be highly toxic, hazardous to water, and in a small number of cases there have been possible links to cancers. Chromate takes the form of a greenish-yellow-solid however, it can take 1 to 2 days for this colouring to become visible, or it may not be visibly identifiable on account of external influences.

Once alerted to this issue, Breedon engaged with a specialist company, Socotec, to develop a programme to identify and monitor the presence of Chromium VI within the Hope works process. The process began with surface swab testing on internal surfaces during a major shutdown. The company used recognised analytical processes to establish whether there was any Chromium VI present within the plant. This process was then followed up with extensive personal and static dust monitoring to identify the levels of airborne Chromium VI during refractory and mechanical works.

The study revealed that Chromium VI was present in one location, on the vortex plates and, during refractory removal from the vortex ring. Chromium VI levels were recorded above the workplace exposure limit.

These results were used to develop a safe system of work in conjunction with contractor partners to ensure the health & safety of all parties. Air-fed helmets were purchased for the contractor controlling the machine that was used to remove the vortex plates during the shutdown.

The information was shared with members of the MPA Cement H&S committee.

### BENEFITS

- A previously unknown H&S issue was identified and quantified
- Safe system of work developed to mitigate this risk
- Reinforced close collaboration between Breedon and contractors on key H&S issue.

### TRANSFERABILITY AND DEVELOPMENT

- Since this issue was raised via the MPA H&S committee, Breedon have led the way with the identification and quantification of Chromium VI within the manufacturing process, sharing information and progress with all committee members
- The process has helped to foster further collaboration with Breedon's contractor partners in developing, communicating and implementing a new system of work for a number of key tasks where Chromium VI has been identified
- Although the issue is only related to the clinker manufacturing process, the information has been shared throughout the Group to raise awareness of the issue and the process that was followed to identify, quantify and then to mitigate the risk.

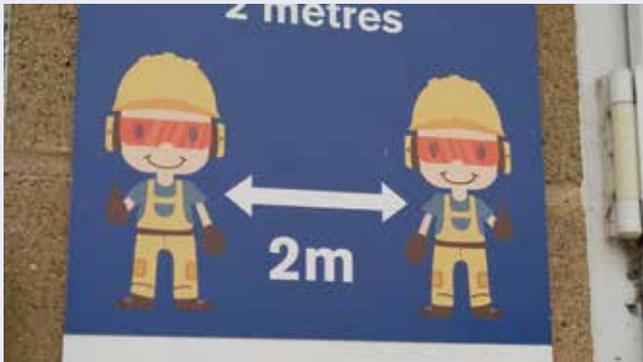




# 21175 Three concurrent cement works shutdowns (Covid) video



Hanson > Ribblesdale Cement Plant



## DESCRIPTION

In January and February each year, Hanson's three cement kilns are shut down for a three-week overhaul. The overhaul is carried out by hundreds of contractors working to tight timelines and in relatively close confines. The challenge for Hanson was to complete the work at the height of the Covid-19 pandemic without causing Covid-19 transmission.

Achieving this goal required meticulous research, planning and implementation of a multi-layered Covid-19 protection system. This included the following;

- 1) **Commitment, leadership, team spirit:** Prior to the shutdowns, Hanson invited the senior managers/directors of all contractors to attend an online briefing, setting out their Covid-19 control strategy and seeking their commitment to join Hanson in a huge team effort to achieve the goal of zero on-site Covid-19 transmissions.
- 2) **Protect vulnerable groups:** All contractors were informed that they must not include any people classified as vulnerable to Covid-19 within their shutdown work teams.
- 3) **Preventing Covid-19 positive people entering site:** Lateral Flow Testing facilities, manned by up to four full time nurses from our Health Screening Company IDC, were established on the perimeter of each cement plant. All contractors and employees working with them, were required to test negative for Covid-19 prior to first entering the site and to retest negative every seven days. In total, over 3700 tests were completed. 58 Covid-19 positive people were intercepted by the test centres and prevented from entering the site, thereby eliminating what would have been a huge on-site transmission risk.
- 4) **Screening for Covid-19 Symptoms:** At the start of each shift all contract companies were required to take the temperature of all their employees and submit a declaration that they were free of symptoms.
- 5) **Segregated facilities:** All contractor companies were provided with their own welfare facilities to minimise the risk Covid-19 transmission during break times.

- 6) **Segregated workgroups:** Wherever practical worker groups were sub-divided into "bubbles" and each bubble segregated from the others in the work areas.
- 7) **Social Distancing:** Wherever practical work was planned to allow workers to maintain 2m social distance.
- 8) **PPE/RPE:** Respiratory protection was mandatory in all areas during the shutdown. Wherever practical, face shields were worn in addition to respiratory protection when 2m social distancing could not be maintained.
- 9) **Audit/Review/Corrective Action:** Hanson created a Covid-19 audit App which all contractors and managers completed daily on their mobile phones on-site and uploaded directly to the safety department data manager. The results of the audits were distributed daily by the Safety Department and discussed at a daily interworks teams meeting with all three sites. Praise and thanks for good practices, effort and results were communicated out from these meetings along with corrective actions where required.

## BENEFIT

- 3 concurrent, major shutdowns completed without a single case of Covid-19 transmission on-site
- In addition to the 1500 or so workers involved in the shutdowns, the families who they returned home to were also protected
- Contractors and employees felt safe/protected from Covid-19 at work
- Enhanced the safety culture both within Hanson and their contractors

## TRANSFERABILITY AND DEVELOPMENT

- Hanson was the first of the UK cement companies to go into a major shutdown during the Covid-19 pandemic. Once Hanson had finalised its shutdown Covid-19 protection plans it arranged a special meeting of the MPA cement safety committee to enable them to share their plans with the companies whose shutdowns followed theirs.



21046 **'Healthy You'****Aggregate Industries****DESCRIPTION**

Aggregate Industries (AI) believes that healthier, happier people are safer people. This belief has been reinforced by a long running campaign, 'Healthy You'.

In 2020, the 'Healthy You' programme was used to raise awareness of mental health issues. The campaign was sponsored by the Deputy CEO, John Bowater. The strategy for the campaign incorporated a wide range of initiatives but had a strong emphasis on communication.

AI undertook an extensive worker consultation using a survey to benchmark progress and facilitate further change. Trend analysis from the survey enabled AI to develop six 'Key Pillars' as the foundation for every mental health communication;

**Mental Health; Physical Activity; Nutrition; Financial Wellbeing; Keeping Connected and Sleep.**

A plan was established for each pillar and experts were engaged to provide training, materials, and to speak on these 6 topics. AI rolled out MH training to individuals in each region, who became advocates for the company as Mental Health First Aiders (MHFAs), 140 were trained. Communications were tailored for those on furlough, working on-site and at home. This included a 'check-in' with each other on a regular basis to counteract stress, worry and loneliness

AI conducted, regular, short 'pulse surveys' with one question per pillar to review engagement, obtain feedback, and identify

further changes. A quarterly, mental health newsletter signposts employees to resources and outlines new initiatives.

**BENEFITS**

- 65% + engagement, improved health and safety culture and changed behaviours
- 700 AI employees have participated in formal mental health awareness training (equating to 1 in 5 employees)
- All employees have received 'Start the Conversation' training and 400 managers attended an OH provider led MH awareness webinar
- Employees have easy access to wide range of lifestyle, MH resources and specialists
- Training has provided managers with skills and tools to effectively support their teams
- The negative stigma around mental health has been removed
- Nominated by both Mates in Mind and the Highways England for awards in their MH & Wellbeing categories.

**TRANSFERABILITY AND DEVELOPMENT**

- These changes could be applied within other companies.
- AI intend to improve contact with individuals via a 'My Health Assured' App.

21196 **Marshalls supporting healthy minds****Marshalls Plc****DESCRIPTION**

In 2019, Marshalls launched its mental health and wellbeing policy. It recognised that mental wellbeing is a key factor in an individual's health, safety, social wellbeing, and productivity. By promoting good mental health, the positive benefits are realised by individuals, their families, and the broader society.

Marshalls developed a network of over 35 trained Mental Health First Aiders (MHFAs) throughout the business, Marshalls plan to train a minimum of 16 more MHFAs throughout 2021, ensuring coverage at every site.

Marshalls ensures a constant flow of communications related to wellbeing during the year. It has held focused 'tea and chat days' to encourage conversations and break the stigma that can be associated with mental ill health.

Throughout the pandemic, Marshalls provided support, advice, and materials to promote good mental health and wellbeing. It helped employees understand how to manage work-life balance. The MHFAs started up their own weekly 'Furlough Times' newsletter. Marshalls has a 'Wellbeing Wednesday' to keep the focus on wellbeing and mental health at the forefront

of people's minds. A portal has been launched - NOW (News, Offers, Wellbeing), with discounts for retailers, access to benefits, information about what's happening at Marshalls, and wellbeing focused information and support. The number of conversations and referrals held by the MHFAs are tracked by Marshalls to monitor the effectiveness of the support provided.

**BENEFITS**

- Increased awareness of mental health and wellbeing issues in business
- Managers and employees better able to manage mental health and wellbeing issues
- Helped to break down the stigma sometimes associated with mental health issues
- A healthier, happier, and safer organisation.

**TRANSFER AND DEVELOPMENTS**

- Other organisations could easily adopt some of these ideas to assist in the management of mental health and wellbeing issues.

Visit [www.safequarry.com](http://www.safequarry.com) for more details or email: [info@safequarry.com](mailto:info@safequarry.com)



# 21056 Mental Health and Wellbeing

CEMEX UK Operations Ltd > National

## DESCRIPTION

In this time of uncertainty and fear, how to deal with the changes that are happening to our everyday lives is vitally important to our mental wellbeing. We have no control over what is happening in terms of the threat of Covid-19 but we have the means to control how we respond to it.

CEMEX had 600 people permanently working from home at the outset of the pandemic and additional operational people working part-time at home.

Following regular management calls with their teams, specifically those working from home during the pandemic, it was apparent that although this new way of working may suit some people, some employees were really struggling to adapt.

The management team reviewed what support was available and decided to carry out two trials of Mindfulness training. These sessions were held in December and were offered to all employees. They were aimed at exploring mindfulness techniques to help deal with the stresses and strains of everyday life. The evaluation of the effectiveness of the pilot was very positive and a further four sessions were carried out with positive feedback.

Almost 100 CEMEX employees participated in these sessions.

In addition, with the 2nd highest sickness/absence causation being stress – CEMEX chose to train a number of key workers as Mental Health First Aiders. To recognise the signs of stress before it became sickness and potentially to stop a crisis from happening, 60 CEMEX employees went on a Mental Health First Aid training course which teaches people how to identify, understand and help someone who may be experiencing a mental health issue.

The key elements of the training are summarised below:

### Mindfulness

- Introduction to Mindfulness & its benefits
- Getting out of auto-pilot with its unhelpful ways of thinking and feeling
- Is there a right and wrong way to practice Mindfulness?
- Gathering the Scattered Mind – a 3-minute breathing exercise for when you are feeling anxious, stressed or overwhelmed
- Practising Gratitude – how practising gratitude can help us to cope with challenging times such as these
- Progressive Relaxation of all Muscle Groups
- Sitting Practice – Extending our Mindfulness practice
- How we can practice everyday Mindfulness when social-distancing/self-isolation.

## Mental Health First Aid

An in-depth understanding of mental health and the factors that can affect wellbeing

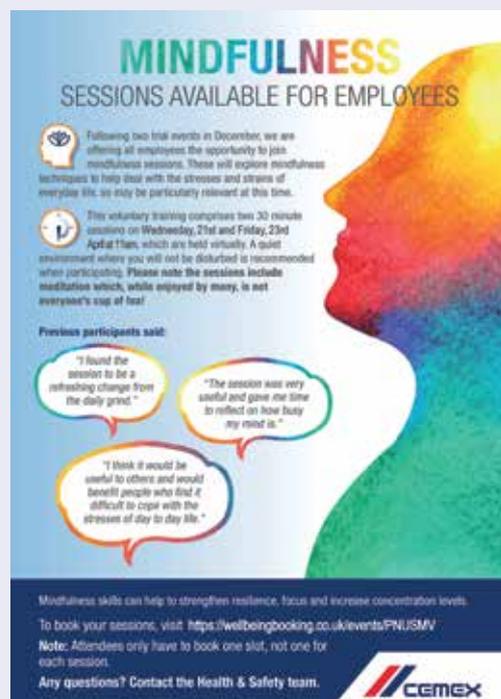
- Practical skills to spot the triggers and signs of mental health issues
- Confidence to step in, reassure and support a person in distress
- Enhanced interpersonal skills such as non-judgemental listening, knowledge to help someone recover their health by guiding them to further support – whether that's self-help resources, through their employer, the NHS, or a mix of the two.

## BENEFITS

- Raised awareness and understanding of mental health within CEMEX
- Support provided to individuals to cope with mental health and wellbeing issues
- Organisation better placed to effectively manage mental health and wellbeing issues
- An healthier and safer organisation.

## TRANSFERABILITY AND DEVELOPMENT

- Future Mental Health First Aid and Mindfulness sessions will be run on a 'demand' basis
- The courses are transferable to all industries.



# MPA Special Award

## CEMEX UK

- for its outstanding contribution to the industry in helping to raise standards in health and safety.

*“The strength of a trade association is determined by the contributions made by its members. This is especially true in health and safety, and with our theme ‘Safer by Sharing... Safer by Action’, this couldn’t be more relevant.*

*CEMEX has maintained a consistently high performance in health and safety and has been generous in sharing its resources, expertise and support with MPA members.*

*MPA would also like to recognise Andy Taylor, the longest serving member of the MPA Health and Safety committee who led the ‘MP Connect Drivers’ roll out this year.”*

*Chris Leese – Chair of MPA judges*



# Topic 8

# Safer together



**This award relates to initiatives where the main emphasis is on working together, leadership or behavioural change. This could be site-specific, divisional or company-wide initiative. It could include:**

- Training programmes
- Safety days
- Communication programmes
- Cross site safety audits or similar initiatives.



WINNER		
<b>Tarmac Ltd</b>	21020	Professional operator development programme
FINALISTS		
<b>Breedon GB Materials</b>	21004	HSEQ new HUB
<b>FM Conway</b>	21131	'The Big Ten in 10'
HIGHLY COMMENDED		
<b>Acheson &amp; Glover</b>	21094	Have a 'SafeDay' at work and 'Go Home Safe' Campaign
<b>Brett Landscaping</b>	21043	Consistent communication of LOTOTO 9 steps
<b>Cappagh</b>	21053	Multi-language and digital communications and toolbox talk delivery
CERTIFICATE OF MERIT		
<b>Breedon</b>	21121	Breedon geotechnical toolbox talks
<b>Leiths Scotland Ltd</b>	21011	QR Code use – near miss reporting
<b>Tarmac Ltd</b>	21023	Forecasting for safety weekly call
<b>Tarmac Ltd</b>	21073	Dynamic induction station
<b>Tarmac Ltd</b>	21074	Closed quarry improved safety signage
<b>Tarmac Ltd</b>	21090	Dynamic daily briefs
<b>Tarmac Ltd</b>	21091	Information display TVs – L&SE Readymix -Safer Together
<b>Tarmac Ltd</b>	21092	Dedicated learning on the dangers of unauthorised access into quarries



21020

# Professional Operator Development Programme (PODP)

Tarmac **1** **2** **3** **4** **5** **6**



Mobile plant checks

## DESCRIPTION

Having competent frontline operators is critical to safe operation of plant equipment. A competent person is defined as someone who has the necessary skills, experience and knowledge to carry out their responsibilities safely.

Historically, competence has focused on technical skills through vocational qualifications and periodic, on-the-job assessments to demonstrate on-going competence. It's possible for an apprentice to achieve all qualifications in the framework but not actually have the right skills to carry out their job. This means some apprentices may need further training from their employer.

Apprenticeships are now based on standards that contains a list of the skills, knowledge and behaviours an apprentice will need to have learned by the end of their apprenticeship. Standards are occupation-focused; they are not qualification led. The learning happens throughout the apprenticeship and the apprentice is assessed at the end. They need to prove that they can carry out all aspects of their job.

Using an apprenticeship standard Tarmac have created the Professional Operator Development Programme (PODP) for its new operators. This formalised programme develops an operator (of any age) from novice to skilled in 12 months developing the knowledge, skills and behaviours necessary to perform their role healthily and safely.

Working with employers across the mineral products industry a trailblazer group was set up to collaborate to produce an occupational standard for a mobile and static plant operator in minerals processing. With a vocational qualification incorporated it also maps to the National Occupational Standard (NOS). The standard was approved by the Institute for Apprenticeships (now IFATE) in June 2017.

Tarmac reviewed the standard and realised that it covered about 70% of its operators. With 100 to 150 new starts per year, Tarmac decided to adopt the nationally recognised standard to develop its new operators. Several business stakeholders were involved to provide a comprehensive programme of development leading to a skilled operator in 12 months. The development elements within PODP include:

- Who are Tarmac and CRH – purpose and values
- Tarmac's products, processes, and customers
- Interpersonal skills
- Occupational health and wellbeing
- Safe working including hazard spotting, risk assessment and safe behaviours
- Sustainability
- Plant operation

One challenge in rolling out the programme was the need to ensure that the operational business understood the changes in the standards, that they were not age restricted and the perception that the 20% of the time in training was 'not working'.

The programme was initially delivered in partnership with an external provider but using internal expertise to deliver the learning. Detailed workbooks are provided to guide the learners through the learning and regular internal reviews are carried out with each learner to monitor progress and ensure their ongoing continuous development (CPD) is recorded. This also ensures that they will be ready when they have their external end point assessment to qualify.



Reviewing safe working practice

Visit [www.safequarry.com](http://www.safequarry.com) for more details or email: [info@safequarry.com](mailto:info@safequarry.com)



# 21020 Professional Operator Development Programme (PODP) – *continued*



## Tarmac 1 2 3 4 5 6

Tarmac have now become an employer provider such that every part of the apprenticeship is delivered and administered by themselves. The incorporation of other apprenticeship standards into PODP, to cover more of Tarmac’s operational and technical roles, is being reviewed.

The programme has been communicated to MPQC and the mineral products industry and customers have been to the National Skills & Safety Park to learn about how it is delivered and the benefits of the programme to Tarmac.

### BENEFITS

- Over 100 learners have started the Professional Operator Development Programme
- Success rate of 81% with an impressive 36% achieving a distinction at End Point Assessment
- Positive feedback from line managers and external stakeholders
- Apprentices have helped to support a positive health & safety culture
- Has helped recognise that some employees have additional learning needs
- Created a more inclusive learning environment
- Ensures learners are supported to overcome barriers to learning
- Training that is delivered consistently to all learners

- Programme develops knowledge, skills and behaviours with on-the-job experience
- Attitude and behaviours are a key focus of the programme
- Positive feedback from both learners and their line managers.

### TRANSFERABILITY AND DEVELOPMENT

- Tarmac is now adopting other apprenticeship standards that are relevant to other technical and operational occupations. They will be incorporated within the programme with employees then “streamed” according to their occupation.
- Although Tarmac is an employer provider, the principles of the programme are transferable to both large and small employers. Through collaboration and working with training providers, employers can adopt the practices to develop skilled operators.
- Through MPQC, Tarmac has presented the approach to other organisations.



Safe work at height



Isolation training

21131 **'The Big Ten in 10'****FM Conway** ① ② ③ ④ ⑤ ⑥**DESCRIPTION**

FM Conway has developed a risk management system 'The Big Ten in 10'; it is a direct reflection on the principles and the specific high consequence hazards identified in 'The Fatal 6'.

Like 'The Fatal 6', FM Conway risk profiled their business to identify the 10 high consequence hazards with the intention of eliminating, substituting or engineering out those risks in 10 years, hence 'The Big Ten in 10'.

The industry has historically focussed heavily on behavioural based safety systems, yet every year people are still killed and seriously injured with these numbers plateauing over the last 5 years.

FM Conway had a historical lagging indicator that would be enviable to many businesses

- 1 fatality nonculpable in 60 years of operations
- RIDDOR 0.14/100 000 average
- near misses reported increased from 350/yr. to 53 000/yr.
- TBT from 10 000 to 35 000/yr.

Despite these figures FM Conway was concerned that the risks of fatal or life changing harm were still present, lagging indicators showed nothing of what the future could hold and where the true fatal risks would lie in the business.

FM Conway implemented a new philosophy, requiring an entirely new system, new tools and a cultural step change that would deliver a new way of thinking; more solutions and processes compared to those that preceded it.

The starting point was an in-depth 'Risk Profiling Analysis' across the whole of the business. This involved a qualitative review of the accident data and workshops facilitated by the SHEQ team. The workshops were used to collect data from their operational teams and employees, critically identifying what they perceived to be the biggest risk to life and serious harm in their daily work activities

This was further evaluated by a group of safety professionals and discussed with professional trade bodies. Combining input from these three sources, FM Conway identified the 10 big risks which they committed to eliminate from their business, by substitution or engineering them out in 10 years! Creating "The Big Ten in 10".

These risks are analysed on an on-going basis by reviewing key data, a series of schedules monitoring activities such as Big Risk Audits, inspections, near misses, and automated reporting. The



data is fed into their Big Risk Barometers that show what the potential risk is versus what the actual risk is for each division and the business as a whole. <https://www.youtube.com/watch?v=WuW1LTack3U>.

What is uniquely different about FM Conway's approach is the report on each risk activity using recognised weak signals. These can be used to weight the risk potential for each activity across all divisions and ultimately the corporate risk. It negates the risk of judging your performance from lagging data, it allows the teams to drive the risk vehicle by viewing its future direction through the screen rather than the rear-view mirror, after an incident has occurred!

Having identified the Big 10 risks, the next step was to start the process of identifying the methodology that would allow the Big Risk teams to find solutions that would give fail-safe and multiple levels of sustainable controls to eliminate the risks.

These solutions were then mapped into a series of 'Leading' and 'Contributory' Indicators calculated to show an improvement frequency rate for each division across all Big Risk areas. Ultimately, these indicators were aligned to represent FM Conway's corporate dashboards' designed to dynamically drive improvement.

Every three years, each division is required to submit their Big Risk improvement plan to identify which activities can be targeted for elimination, substitution or the provision of engineering control to reduce risk; at the same time adjusting the next phase of 'Contributory' and 'Corporate' Leading Indicators to identify sustainable solutions as technology or the activity changes.

Some examples of the strategy in action are detailed below.

- A combination of safety critical controls has reduced the likelihood of a 'boom' being accidentally released during transit across our gully vehicles, eliminating 1,200,000 potential incidents annually
- Using CleverScan camera systems, 40 manholes can be fully scanned within a single shift, eliminating 30,000 physical confined space entries each year
- Using Auto-Stop Rader across FM Conway's fleet has resulted in a 90% reduction on the 25,000 pedestrian interactions involving reversing sweeper movements a previous MPA Award winner
- Introducing a platform step ladder with a handrail and a telescopic scaffold tower for working at height activities, has ensured a physical engineering control of 120,288 risks from working at height
- Implementing a new 'Donkey' slab lifter using a modified sack-barrow, significantly reducing strain and reducing 970,000 manual lifts annually (See entry on page 61)

Visit [www.safequarry.com](http://www.safequarry.com) for more details or email: [info@safequarry.com](mailto:info@safequarry.com)



# 21131 'The Big Ten in 10' – continued

FM Conway 1 2 3 4 5 6



- We implemented a spray-bar system for applying water to the tipper body of asphalt lorries, removing 429,000 working at height activities annually
- Implementing dual-control cross-monitored design systems, eliminating the potential for over 600,000 isolation and guarding incidents each year
- Addressing risk at the design stage, FM Conway can provide solutions to prevent the potential of 37,000 incidents due to lack of and/or failure of temporary works.

'The Big Ten in 10' will evolve as new technologies and controls are developed to aid the health and safety processes.

To ensure a continuous process of improvement is maintained, employee forums have been changed to a Big Risk agenda where employees are engaged on Big Risk profiling and the frequency of Big Risk activities, developing and sourcing solutions.

Big Risk is an integral part of the design stage for work across the business, designers must consider the hierarchy of control when designing projects and plant improvements. All design drawing and specification includes the Big Risks that require additional controls.

FM Conway's training for employees has a focus on the Big Risks taking into account the training needs for each division and ensuring that training is specific to those needs. Setting leading indicators for each division drives the requirement to ensure each division has the right capacity to cover all of their identified Big Risks.

In summary, 'The Big Ten in 10' approach represents a major step forward in driving the elimination of fatalities and serious incidents that occur every year in industry. FM Conway's unique approach takes full advantage of digital and technological advances, providing physical, electrical and mechanical protection across their 10 Big Risk areas.

## BENEFITS

- A fully integrated risk management system aligned with business processes and reporting systems
- Clear identification and focus on activities where an employee is most exposed to risk
- A system that is designed to completely eliminate rather than just manage risks
- Fail safe controls introduced where risk is not engineered out or eliminated
- Employees are fully engaged with the process
- Significant high potential risks have been eliminated from the business
- Enhanced the safety culture in business
- A safer environment for all.

## TRANSFERABILITY AND DEVELOPMENT

- 'The Big Ten in 10' will continue to be developed. In particular, FM Conway are exploring the use of artificial intelligence and machine learning to improve the managing of risk associated with human factors.



FM Conway believe that health and safety professionals of the present will morph into risk engineers that promote and deliver a more proactive approach to risk management. Health and safety will need to further exploit the technology market to identify and develop innovative solutions that will allow people to fail safely.

- FM Conway is raising the awareness of 'The Big Ten in 10', both internally and externally, and monitoring feedback on its new approach. 'The Big Ten in 10' has been showcased at a number of high-profile events by Highways England with a view to introducing the philosophy into its own client/contract base processes.

It has also been shared with a number of organisations and clients, Transport for London, HS2, Osbornes, Costain and Supply Chain, LOTAG, Dyer & Butler, City of London, Connect Plus (including Balfour Beatty, Kier, Skanska).

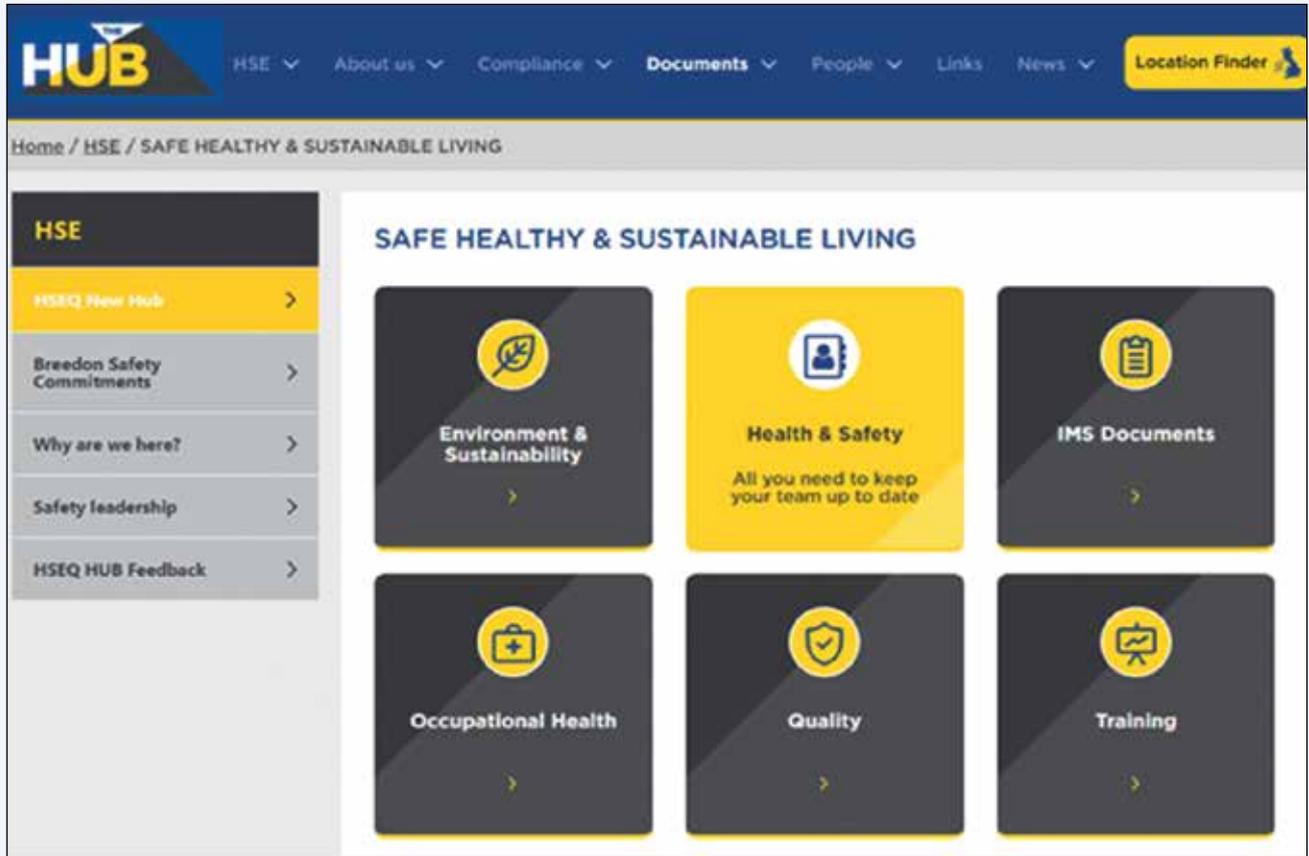
- 'The Big Ten in 10' has been designed to be transferable. The 'Risk Profiles' and 'Leading Indicators' may be different elsewhere, however, the theory is the same and the approach can be widely applied. FM Conway has produced a standalone website that houses a plethora of information from the initial strategic document through to case studies and 11 animations to explain the principle of Big Risk and the controls that can be applied.

● <https://www.fmconway.co.uk/people-first/big-ten>



21004

# HSEQ new HUB

**Breedon GB Materials****1 2 3 4 5 6**

## DESCRIPTION

In large organisations it can be a challenge to find the information or resource you need; the organisation may have the information but it is not always easy for the end user to access it.

The SHE team at Breedon recognised from the feedback provided by their internal customers located at company sites, that it needed to make it easier for managers to perform some of their tasks.

The team spoke to managers to understand exactly

- What they needed to be able to access
- What frustrations they experienced in finding things
- How their working lives could be made easier.

This feedback was combined with the SHE team's knowledge of what they were consistently failing to find out on-site, clarifying which communications were failing to get through to the sites.

Based on this analysis they developed a system that was easy to use and where the following could be easily accessed or achieved via one central page.

- All internal health and safety information
- Relevant information about and access to service providers via direct links to ordering portals and catalogues
- The ability to share best practice from multiple sources including an extensive library of images searchable by subject e.g., guarding
- To facilitate the reporting of unsafe acts and conditions, managers and employees were given direct access to the SHE ASSURE system
- Selected external providers were asked to become proactive in helping with the management of some processes. These providers were given access to Breedon's SHE ASSURE reporting database. This enabled them to raise actions against the site without the manager having to do it. An example of this was allowing the provider of structural surveys to put any serious issues identified and those affecting safety directly onto the manager's site action list.
- Other service providers incorporated into the system included Bureau Veritas for electrical and mechanical inspection, occupational noise and dust with SOCOTEC, PPE, online forms ordering, stack inspection, waste services,



# 21004 HSEQ new HUB – continued

Breedon GB Materials 1 2 3 4 5 6



Nigel Clamp

occupational health resources (via IDC) for routine health, HAV's, RCS guides and protocols. They put up standardised catalogues from PPE providers Guardsman, Arc Flash materials and LOTOTO equipment with assistance of Reece.

- Information to help identify what training was required, a training needs analysis by job role, information about the training available from partners like MPQC and Mentor, and the ability to facilitate/organise the training
- Relevant external third-party information such as HSE websites and Safequarry.com
- Relevant guidance documents both internal and those provided by organisations like MPA, HSE, IEMA, IOSH and NEBOSH
- A remote auditing resource that was based on a standard index of files for each site. The site would be able to start filling out all the necessary local documents required to support the audit. This would enable the individual undertaking the audit, to considerably reduce their travel time as they would be able to complete the audit of the site paperwork without leaving the office. Then time spent on-site would be used for the physical checks on the ground.

Breedon created 'A one stop shop' for everything, they named it 'The Breedon HSEQ new HUB'.

The system was built during the 2020 lockdown, a new internal platform based on its 'SharePoint' intranet system which users could access via multiple platforms. The system could be easily amended, updated and modified by the SHE team, without reliance on any outside providers.

The format was like a 'bookcase' of app-based tiles that linked to the key information required by the managers and systems that automated some processes to make the manager's life easier.

The manager was able to easily see from a section at the head of each tile, the most recent updates and what had changed.

After initial trials, some additional tiles were added at the request of the logistics department.

## BENEFITS

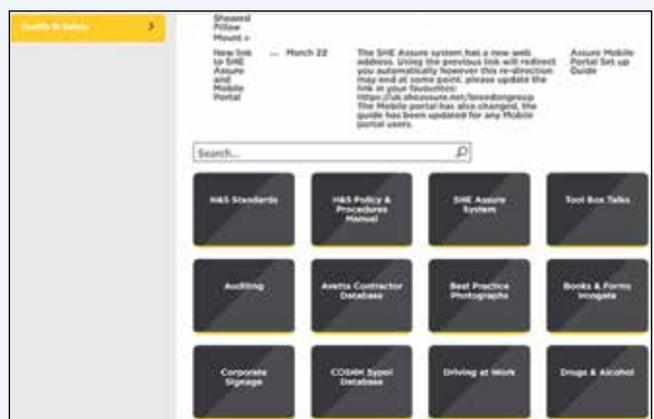
- Managers know 'exactly' where to go for virtually anything in one place
- The system is user friendly
- Essential resources can be accessed in a timely matter
- The system is saving managers time
- Site folders will contain all critical information
- A planning system will allow managers to view their planning permissions, permits or water discharge licences outlined on their site plan on a map
- The ability to merge documents and links across the functions of the business
- Is stimulating continuous improvements on all sites
- More efficient management of sites
- Contributes to eliminating 'The Fatal 6'
- Contributing to a stronger health and safety culture.

## TRANSFERABILITY AND DEVELOPMENT

- The next stage is to store everything electronically, working towards a goal where everything specific to a site has been included. The library content is constantly being developed so that it will become a complete and indispensable tool for the business. The data cannot get lost and is always available

Additional sections will be added for other functions such as HR and accounts. Next stages being considered also include contractors and logistic hauliers.

- Breedon is more than willing to share how the system was developed, the IT framework and supplier that supported the first initial design, to train others and share with other companies or SME's how easily this could be achieved in their business.





21094

# Have a 'SafeDay' at work and 'Go Home Safe' Campaign

**Acheson & Glover** **1** **2** **3** **4** **5**

Family picture supporting 'SafeDay'



## DESCRIPTION

Acheson & Glover (AG) is committed to the continual improvement of its HSEQ Management system, striving to ensure that all their employees, visitors, contractors and hauliers go home safe.

In spite of the many challenges faced by AG in 2020, its domestic sales dramatically increased leading to an unprecedented demand for product. The priority during this busy period was to ensure that the focus remained on safe production at all times.

To facilitate this, AG ran a special, one month, campaign during October which focussed on health and safety. The aim of the campaign was to raise awareness of key issues, encourage all its employees to take personal responsibility for safety, and to promote a positive safety culture across the business.

AG used its safety management system, accredited to ISO45001, to analyse its incidents. This revealed that 70% of its total incidents (including dangerous occurrences and near misses) fell into 'The Fatal 6' categories. Therefore, the following five themes became the basis for the key messages during its 'SafeDay/Go Home Safe' campaign.

- 1 Mobile plant and pedestrian safety
- 2 Lock out and isolation
- 3 Working at height
- 4 Silica dust awareness
- 5 Mental health and wellbeing.

In the first instance, the HSEQ team, Operations Director and Marketing Manager got together to decide on a plan of action to ensure that the month-long campaign was a success. It

was decided that a number of toolbox talks and events would take place across the month. Each of AG's 6 sites would host a 'SafeDay' where the focus would be on the five key safety messages. PFI Training, an external training provider, worked with AG's HSEQ team to tailor these SafeDays to ensure they were specific to the AG sites. The campaign included a range of initiatives some of which are summarised below.

AG also recognised the need for the workforce to become personally involved and engaged with health and safety. AG's 'Engage App' was used to report 'Good Catch' hazard observations. The App allows live hazard reporting where photos of the issue are sent to a live portal, here an action is assigned and close out can be tracked ensuring accountability. The App was relaunched via digital notice boards and site meetings to encourage use throughout the month. Employees were encouraged to take photos of their family and hobbies at home demonstrating the reasons they wanted to have a 'SafeDay' at work.

The AG Board of Directors lead by example during the campaign, ensuring they attended the individual site SafeDays as well as targeting a total of 15 VFL tours for completion. The VFL tours were completed by the directors in conjunction with site employees.

The site production supervisors and production managers completed a Level 2 Award in Health and Safety. This course was provided by an external trainer and focused on hazard spotting and risk assessments, to aid the process of reviewing safe working procedures and risk assessments which took place during the month.

A 'SafeDay' H&S pocket guide was created by the HSEQ team in conjunction with the marketing team before being professionally printed for distribution during the site SafeDay. This top-quality booklet contains useful guidance on the company's main hazards.

The 'SafeDay' on each site was carefully planned in conjunction with the HSEQ team, the training provider and the site managers and supervisors to ensure that employees received the key messages in an interactive and thought-provoking manner. All employees including production staff, office staff and fleet drivers attended the event. A number of AG's regular contractors also attended which ensured that the 'Go home safe' message was extended to everyone on-site.

By stopping production during a busy period for the company to facilitate the 'SafeDay', employees recognised the importance of the messages being delivered. Furthermore, it demonstrated the company's commitment to safety improvement



# Have a 'SafeDay' at work and 'Go Home Safe' Campaign – continued

Acheson & Glover 1 2 3 4 5

## BENEFITS

- Created a positive safety culture
- Helped make safety positive and personal, across the sites
- Increasing numbers of safety observations and improvement ideas
- External auditor commented about the improvement in health and safety
- Employees feel empowered to both identify and address H&S issues
- Significant increase in the use of the of the Engage App
- Issues can be managed more efficiently
- Greater awareness of health and safety issues at all levels
- Contractors understand AG's commitment to health and safety and what is required of them
- Improved safety performance – no 'Fatal 6' incidents resulting in injury since campaign
- A safer environment for all.

## TRANSFERABILITY AND DEVELOPMENT

- AG will continue with the campaign on an annual basis, focusing on key safety messages identified by analysis of incidents.
- The 'Go Home Safe' message and the 'Engage App', to report hazard observations, are both being used on a daily basis.
- This approach could be repeated throughout the construction industry to improve the safety of staff. AG has promoted this continually through social media channels and its website to raise awareness of health and safety within the workplace.



Site 'SafeDay' event



Resources supporting the 'SafeDay' campaign



Using the 'Engage App'



21043

# Consistent communication of LOTOTO 9 steps

**Brett Landscaping****1**

LOTOTO promotional mugs and pen

## DESCRIPTION

Brett Landscaping manufactures concrete block pavers, flags, specialist kerbs and garden landscaping products at 4 sites across the UK: Barrow-upon-Soar, Cliffe, Poole and Pocklington. There are circa 200 production-based employees at these sites, and personnel from support functions who regularly visit the manufacturing sites. The production factories are highly automated but regular interventions are required by both production and maintenance personnel.

The safe isolation of equipment using the LOTOTO 9 steps is essential for production interventions, the completion of maintenance, and housekeeping tasks.

Between 2014 – 2018, various standard PowerPoints and toolbox talks on isolation had been developed and regularly delivered by managers and supervisors in BLBP. There was concern that the consistency and quality of the presentations varied depending on the individual giving the talk.

In addition to these talks, the specifications for isolation padlocks had been standardised along with a colour coded lock system, this enabled anyone to identify which department the personnel isolating the equipment were from. Multi-hasps and personal padlocks were always used, whether at an isolator or to secure interlocked key exchange systems that disconnected the 400v power supply.

However, on occasions, near misses or behavioural safety observations were still highlighting failures to correctly secure isolations or not try-starting each and every time.

The site teams were looking for a training tool that was easy to use and provided a consistent message every single time. This needed to be achieved without commissioning expensive external media consultants. It also needed to be suitable for using at employee and agency worker inductions.

Although the MPA booklet 'Guidance to Energy Isolation and LOTOTO 9 steps' was an excellent publication, it needed a consistent presentation to accompany it, so that the safety messages could be delivered to the same standard every time, ensuring a high-quality implementation.

Brett Landscaping had CCTV footage of a non-injury incident where failure to try-start had meant a faulty key exchange interlock system had not been picked up prior to entry into an enclosure. The Lead SHE manager used the video with a narration describing what had happened and the importance of try-starting every time. He had also found footage via the internet of an actual incident that had led to the fatal crushing of an agency employee on their first day of work at an American manufacturing facility.

Starting with the MPA Booklet as reference, the SHE manager combined this with material from the existing toolbox talks, and the videos to create a LOTOTO 9 steps narrated and animated PowerPoint presentation. The overall presentation lasts 16 minutes and runs automatically.

The LOTOTO 9 Steps narrated PowerPoint was rolled out in mid-2019 to all operational and support staff regularly visiting the factories. This was followed up with a general discussion to highlight potential LOTOTO issues within their workplaces.

It was also complemented by providing copies of the MPA's isolation guide, MPA's isolation posters, and giving everyone a LOTOTO 9 steps mug. These mugs and pens were also distributed to other Brett businesses.

## BENEFITS

- The discussions identified issues and gaps in understanding which were addressed
  - The existence of a master interlock key at one site was disclosed
  - Some pin codes were known too widely across the site
- Provides a consistent high quality LOTOTO 9 steps training package
- Powerful cases studies have high impact
- Personnel are consistently applying the LOTOTO 9 steps process
- Employees are confident to challenge others if they see others failing to follow the LOTOTO 9
- A safer environment for all.

## TRANSFERABILITY AND DEVELOPMENT

- The narrated PowerPoint can be used by other different companies. It can align with their own procedures and terminologies and utilise their own examples of near misses/incidents relevant to their own business/sector.



# 21053 Multi-language and digital communications and toolbox talk delivery

Cappagh Group of Companies **1 2 3 4 5 6**

## DESCRIPTION

Cappagh Group is a very diverse organisation providing a wide range of services. The business operates from a number of depots and sites across the region. Diversity extends to the workforce, which is multi-lingual, multi-cultural, and multi-skilled. The company is one of the preferred vendors to many very demanding LAs and Government lead project stakeholders (HS2, Tideway, Crossrail, Airports etc).

Cappagh realised that it was faced with some developing challenges that needed to be addressed more effectively, these issues were:

- Multiple business locations
- Varying skills, experience and English language ability
- The need for prompt and effective induction and upskilling
- The % of workforce that did not have English as first language particularly Romanian (60%) and Polish
- Effective record keeping and management time
- Mobile working
- Lone and small team working
- Workforce that was required to use specialist plant, machinery and tools
- Ensuring workforce understood safety messages.

One of the key priorities to ensure that health and safety standards were maintained or improved was the ability to communicate effectively with all employees.

Romanian and Polish safety advisors were recruited into the business who were able to communicate effectively but also had an intimate understanding of the cultural issues. The safety team are now receiving calls from non-national speakers, this has never happened in the past as there was a lacking in lingual confidence.

The team were tasked to research alternative training and communication methods that would deliver better results and address the issues highlighted above. A digital communications platform was devised with service provider Res Digital. The resources now available include;

### Digital Communication and Toolbox Talk System

After testing, the company has started to deliver high quality training directly to the individuals and teams involved using their own or company phones, tablets and computers. A system was put in place to ensure that every individual had access to the information and the company could verify that every individual had acknowledged watching a presentation.

Targeted bulletins and immediate learning briefs are now common and indeed a business expectation following any significant event.

### Language Specific Inductions and Corporate welcome

All new employees receive an induction in their first language as far as is possible and they can enrol onto the company's system in their language. This leads to better understanding of content, learnings are confirmed by a small test at the end of each module. Cappagh have developed a suite of specific inductions depending on an individual's role such as a drivers' induction, a recycling staff induction and a generic company induction.

## BENEFITS

- The system has received HSE praise
- Greater confidence that workers have understood key messages and training
- Team of native language speaking SHE advisors supporting workforce
- Near-miss and incident reporting is greatly improved as language barriers removed
- Translation of risk assessments and method statements leading to safer working environment
- Workers feel better informed and engaged
- Company is more inclusive and welcoming
- Improved quality and consistency of toolbox talk delivery, evaluation and assessment
- Supervisors no longer required to deliver toolbox talks
- Training can be delivered at more convenient times such as at home, at breaktimes or between jobs
- Provides a digital means of recording training undertaken and sign off acknowledgement.

## TRANSFERABILITY AND DEVELOPMENT

- The system is in a relatively early stage of development and could be used for other types of communications beyond health and safety
- Cappagh has shared this with clients, cohorts, the HSE and C&G. It is being implemented in sister companies, DC Rail, Express Concrete, Allan Watson, and Cappagh Construction
- There are plans to share this best practice further afield with other companies. Cappagh believe that this initiative would be of interest and beneficial to all larger group companies with similar challenges to the ones it faced.

# Health and safety working groups

## MPA H&S Committee

Carl Platt (Chair)	CEMEX UK
Mike Belson	Aggregate Industries
Sylwia Jennings	Aggregate Industries
Charles McQuade	Aggregates Industries
Shaun Emson	Allen-Newport
Nigel Clamp	Breedon
Mick Stone	Brett Group
Jay Williams	Brett Group
David Hart	CEMEX UK
Andrew Taylor	CEMEX UK
Pat Sheehan	Colas
Craig Buttenshaw	CPI Euromix
Tyrone Partridge	Day Group
Dale Brown	Decomo
Andrew Cox	FM Conway
Paul Humphreys	Forterra
Gavin Caruana	Hills Group
Marian Garfield	Hanson
Asif Khalil	Ibstock
Stewart Vale	Imerys
David Burrell	Marshalls
Kevin Lloyd	ROM
Andy Price	Sibelco
Axl Farr	Singleton Birch
Karla Malkinson	Singleton Birch
Andy Shuttlewood	Tarmac
Gordon Tuck	Tarmac Marine
Greg Lacey	Tarmac Building Products
Matt Bishop	Wainwright

## MPA Health and Safety Communications WG

Darren Broadhead	Broadhead Global
Colin Mew	HSE
Alan Doak	MPA Scotland
Phil Cox	MPA Precast/MPA Masonry
Gordon Best	MPANI
John Wilkinson	MPQC
James Thorne	QNJAC/IOQ
Billy Nicol	Tarmac/MPA Scotland

## MPA Health and Safety Communications WG

Carl Platt (Chair)	CEMEX UK
Mike Belson	Aggregate Industries
Nigel Clamp	Breedon
Andy Taylor	CEMEX UK
Dale Brown	Decomo
Marian Garfield	Hanson
Andy Price	Sibelco
Andy Shuttlewood	Tarmac

## Safer by Competence

Andy Shuttlewood (Chair)	Tarmac
Nigel Clamp	Breedon
Mary Ann Macinnes Collins	CEMEX UK

Tyrone Partridge	Day Group
Stewart Vale	Imerys
James Hennessey	Ibstock
Asif Khalil	Ibstock
John Bussey	MPQC
Laura Mountjoy	MPQC

## Safer by Design

Nigel Clamp (Chair)	Breedon
Tyrone Partridge	Day Group
Paul Pounsford	Daybreak Communications
Andrew Cox	FM Conway
Kevin Stevens	FM Conway
Stephen Cooper	Ibstock
Asif Khalil	Ibstock
Glyn Williams	Toppesfield

## Safer by Partnership

Andy Taylor (Chair)	CEMEX UK
Matt Avery	Aggregate Industries
Mike Belson	Aggregate Industries
Nigel Clamp	Breedon
Kathy Willcox	CEMEX UK
Robert Wilkinson	CEMEX UK
Dominic Day	Day Group
Tyrone Partridge	Day Group
Nick Elliott	Hanson
Marian Garfield	Hanson
Russell Hunter	MPQC
John Wilkinson	MPQC
Andy Cox	MP Skills
John Anderson	Tarmac
Phil Ramsden	Tarmac
Chris Leese	Mineral Products Association

## Bitumen

Mark Mitchell	Aggregate Industries
Jason Barker	CEMEX UK
Mike Taylor	Colas
Dave Whiteoak	Eurobitume
Kevin Stevens	FM Conway
Gary Schofield	Total Energies

## Contract Surfacing & Asphalt

Mark Mercer (Chair)	Aggregate Industries
Ant Lindley	Breedon
Scott Jones	CEMEX UK
Darren Large	Colas
Brett Coupland	Eurovia
Martin Freeman	Eurovia
Ben Gilmour	GPL
Ian Tomlinson	Hanson
Jason Moore	Tarmac
Glyn Williams	Toppesfield
Darren Stokes	Tripod Crest
Matt Bishop	Wainwright

**Lime**

Graham Cooper (Chair)	Tarmac Cement & Lime Ltd
Darren Presgrave	Lhoist UK Ltd
Helen Wallace	Lhoist UK Ltd
Jayne Close	Minerals Technologies
Andy Howe	Tarmac Cement & Lime Ltd
Sandra Reid	Tata Steel Europe
Axl Farr	Singleton Birch
Karla Malkinson	Singleton Birch

**Marine**

Alistair Adamson	Aggregate Industries
Aqeel Hyder	Aggregate Industries
Nigel Reeve	Britannia Aggregates
Sean Collins	Britannia Aggregates
Matt Bland	CEMEX UK Marine
Kurt Cowdrey	CEMEX UK Marine
Ken Hunter	CEMEX UK Marine
Ben Manfield	CEMEX UK Marine
Mark Williams	CEMEX UK Marine
Gary Langton	Hanson Aggregates Marine
Patrick Mallon	Hanson Aggregates Marine
David Thomas	Hanson Aggregates Marine
Stuart Browne	Tarmac Marine
Gordon Tuck	Tarmac Marine
Mark Russell	Mineral Products Association

**Precast and Masonry Health and Safety Steering Group**

Dale Brown (Chair)	Decomo
Simon Marriott	Aggregate Industries
Glenn Rowe	ASM
Rachel Stone	Brett Landscaping
Paul Kania	CEMEX UK
Henry Doherty	Creagh Concrete
Nicola Barron	Forterra
Paul Humphreys	Forterra
Jonathan O'Coy	FP McCann
Philip Ball	H+H Celcon
Natalie Tinsley	HSE
Asif Khalil	Ibstock
Daniel Wain	Ibstock
Shannon Bogue	Mannok
David Burrell	Marshalls
Greg Lacey	Tarmac Building Products
Gav Fincham	Thorp Precast

**'The Fatal 6' - Contact with Machinery and Isolation**

Marian Garfield (Chair)	Hanson
Stephen Braund	Aggregate Industries
Justin Welford	Aggregate Industries
Stephen Cooper	Breedon
Derek Jelley	Breedon
Peter Luxmore	CEMEX UK
Michael Henderson	FM Conway
Kevin Stevens	FM Conway
Paul Aldersea	Heidelberg
Lois Hubbard	K2 Media Services
Pat Bowles	MPQC
William Allison	Tarmac

**'The Fatal 6' - Workplace Transport and Pedestrian Interface**

Nigel Clamp (Chair)	Breedon
Paul Pounsford	Daybreak Communications
Andrew Cox	FM Conway
Kevin Stevens	FM Conway
Nick Elliott	Hanson
Koreen Hubbard	K2 Media

**'The Fatal 6' - Work at Height**

Mike Belson (Chair)	Aggregate Industries
Stephen Morris	3M
Jenny Swindells	3M
Sylwia Jennings	Aggregate Industries
Peter Luxmore	CEMEX UK
Jonathan Wells	CEMEX UK
Kevin Stevens	FM Conway
Lois Hubbard	K2 Media
Billy Johnson	Tarmac

**'The Fatal 6' - Respirable Crystalline Silica**

Andy Price (Chair)	Sibelco
Allison Calvert	AD Calvert
Rachel Stone	Brett Landscaping and Building Products
Peter Luxmore	CEMEX UK
Brian Binnie	Denfind Stone
Graham Dunwell	Hanson
Melanie Brewster	IDC
Paul Bradley	Myers

**'The Fatal 6' - Struck by Flying/Falling Objects**

Paul Lane	Aggregate Industries
David Routledge	Aggregate Industries
David Stead	Breedon Group
Dale Brown	Decomo
Jonathan O'Coy	FP McCann
Deane Spiers	MPQC
Matt Bishop	Wainwrights

**Transport and 'The Fatal 6' - Road Traffic Accidents**

Dave Hart (Chair)	CEMEX UK
Matt Avery	Aggregate Industries
Mark Gaughan	Breedon Group
Daniel Bateman	CEMEX
Scott Pagano	Crick Trailer Sales
Dominic Day	Day Group
Paul Cerexhe	FM Conway
Paul Lacey	Hanson
John Warner	Hills Group
John Wilkinson	MPQC
Paul Bradley	Myers Group
Paul Needle	Smiths of Bletchington
Lee Downer	TJ Transport
Gary Lewis	Tarmac
John Anderson	Tarmac
George Kendall	Wincanton
Jane Walton	Wincanton
Robert McIlveen	Mineral Products Association

# VISION ZERO

## SAFE & WELL EVERY DAY



## SAFER BY SHARING – SAFER BY ACTION

Please review the content of this guide and implement or adapt the ideas presented to make your workplace healthier and safer.



### Mineral Products Association

Gillingham House  
38-44 Gillingham Street  
London  
SW1V 1HU

Tel 020 7963 8000  
Fax 020 7963 8001  
info@mineralproducts.org  
www.mineralproducts.org  
www.safequarry.com

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