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safety solutions

health
safety &
at work

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WELDING FUME RESPIRATORY PROTECTION

FIRE PROTECTION SYSTEMS
TRANSFORMING ANCIENT PRINCIPLES

AT HEIGHT RISKS IN CONSTRUCTION
A MORE HOLISTIC APPROACH

ROAD-FRIENDLY AIR SUSPENSION
PREVENTIVE MAINTENANCE CHECKLIST

construction | infrastructure | health care | utilities | mining | manufacturing | transport

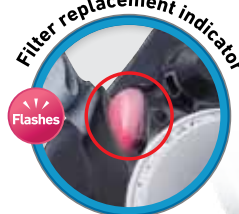
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www.safety solutions.net.au/magazine



Construction, drug and alcohol, fire, respiratory protection and transport are among our chief concerns in the November 2021 edition of **Safety Solutions**. In the respiratory stakes, the welfare of welders has received a deserved boost in attention since 2017, when welding fume was reclassified as “carcinogenic to humans” by the International Agency for Research on Cancer. In this issue, our contributors detail key protections available, in the form of extraction systems and respiratory PPE.

In construction, while the at height risks facing the sector are clearly on the radar of regulators, Scott Barber calls for a more holistic approach — to improve worker engagement and manage risks through fall protection measures, training and environment-specific solutions. It’s a call that, at its core, invites a WHS broad-view similar to Peter Geale’s fire protection systems story, showing us how, through technological innovation, safety principles stretching back 2000 years have been transformed.

On the solutions front, Russell Chown takes us through the safety advantages of air suspension technology in Australia’s heavy vehicle transport fleet — including a nine-point preventive maintenance checklist — while we also explore an in-house, saliva-based drug testing solution that has helped a bus operator safeguard their transport workforce; drug and alcohol testing, which is of particular importance across the festive season.

On that note, as the final magazine for 2021, and on behalf of the entire Safety Solutions media team, I wish you and your own teams a safe conclusion to this year and look forward to sharing with you the leading industrial health and safety news, features,

expert insights, products and case studies in 2022.



Dr Joseph Brennan
Editor, Safety Solutions
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ACT TO INTRODUCE PLUG-IN HYBRID FIRE TRUCK IN 2022

The ACT will be the first jurisdiction in Australia with an electric fire truck, following the ACT Emergency Services Agency signing an agreement with Rosenbauer to deliver a plug-in hybrid electric fire truck in 2022. Minister for Police and Emergency Services Mick Gentleman said the new truck will include a range of features to ensure the safety and comfort of ACT Fire & Rescue firefighters.

“This new fire truck includes a walk in, walk out entry to support firefighters’ backs and knees as they enter and exit the vehicle. Firefighter safety and comfort is at the forefront of the design of this new truck, and it will feature a better use of its internal space and greater crew protection in comparison to the existing vehicles in our fleet,” Minister Gentleman said.

Minister Gentleman added that the ACT is leading the nation in showing how emergency services organisations can transition to zero-emissions fleets, following the state government’s commitment to reaching a target of net zero-emissions by 2045.

“Investments in new technology like this plug-in hybrid electric fire truck are crucial in achieving our target. Transitioning just one of our existing trucks to an electric fire truck is forecast to reduce diesel fuel consumption by about 185,000 litres over a 10-year period,” Minister Gentleman said.



QUEENSLAND SETS DEADLINE FOR CROSS-BORDER TRUCK DRIVER VACCINATION

The Palaszczuk Government has announced new regulations, after several freight drivers entered Queensland while infectious and moved around the community. All truck drivers entering Queensland — along with those entering on a freight pass — must now have received one dose of the COVID-19 vaccine by 15 October, and their second dose (or a booking) by 15 November. Freight drivers entering Queensland from anywhere will also be required to produce a negative COVID test result at the border from within a seven-day period and maintain a seven-day rolling test regime while operating in the state.

A dedicated pop-up vaccination clinic will be established near the Queensland–New South Wales border to support the new vaccination rules for truck drivers. The clinic will be located in Tugun, between Boyd Street and Kitchener Street. Premier Anastacia Palaszczuk acknowledged that freight workers and truck drivers are essential to rebuilding the economy. However, Premier Palaszczuk noted that due to the nature of their work, many freight workers and truck drivers are at greater risk of contracting COVID-19.

“That’s why we’re ramping up our vaccination rollout and making it quicker and easier for truck drivers crossing through the Gold Coast border to get vaccinated. Many drivers are already vaccinated — but for those that aren’t, we want to make it as easy as possible for them to get the jab,” Premier Palaszczuk said. Health Minister Yvette D’Ath added that the pop-up vaccination clinic will be established in Tugun, in a location with plenty of parking and turnaround areas for trucks. “With the Delta variant on our doorstep, we need to get as many Queenslanders as possible vaccinated quickly and safely. While we’ve been largely successful in keeping COVID-19 out of Queensland, there could be an outbreak any time, so make sure you are protected by getting vaccinated,” said Minister D’Ath.

Transport and Main Roads Minister Mark Bailey commended those in the freight industry for doing their part to keep Queenslanders safe, and encouraged all drivers to take advantage of these new regulations and get vaccinated. “The freight industry has continued to step up to meet the additional requirements that have been asked of them since the pandemic began, and we know we’re asking more of them again to help us stop Delta from coming to Queensland. Our big rig COVID-19 testing clinics at Boondall and Goondiwindi have worked really well so adding a pop-up vaccination clinic for truckies further strengthens our health response. We have been working with industry to get the balance of these new regulations right, so I thank them for their efforts and ongoing support through these challenging times,” Bailey said.

Anyone aged 12 years and over is eligible to get vaccinated, with many locations across the state where people can access the COVID-19 vaccine. To find your nearest participating primary care provider, such as GPs and community pharmacies, visit the Vaccine Eligibility Checker.



NEWCREST MINING FINED \$105K AFTER WORKER ATTACKED BY DINGOES

Newcrest Mining Limited has been fined \$105,000 and ordered to pay \$6255 in costs after a woman sustained serious injuries to several parts of her body during an attack by dingoes. The incident occurred in July 2018 at the Telfer Mine, in the Pilbara region of Western Australia. The worker was a contractor onsite as part of a maintenance shutdown. The worker observed a young dingo jump up on a table, before waving it down. The dingo moved and sat nearby on a grassed area.

The woman took a photograph of the dingo, before feeling another sniff her body. She told it to go away, but it did not move. After spotting a third dingo, the woman decided to place what was left of her sandwich in a bin, leaving her mobile phone on the table with a napkin on top of

it. The employee then noticed the young dingo had her phone, before it dropped it near a hedge. When the employee stepped forward to pick the phone up, the two other dingoes attacked her. Other employees heard her screams and came to assist.

The woman was treated at the site's medical centre and transferred to Port Hedland Hospital by the Royal Flying Doctor Service and then to Royal Perth Hospital. The employee was treated for lacerations and wounds to multiple parts of her body and was later diagnosed with post-traumatic stress disorder.

Since the incident, Newcrest has built appropriate fencing and isolated and secured rubbish bins. Newcrest has also implemented education sessions and reinforced to staff members what to do if a dingo approaches. Acting Director of Mines Safety Sally North acknowledged the staff member's colleagues, hospital staff and the Royal Flying Doctor Service for assisting the woman after the attack.

"Employers must ensure their staff members are not only safe in their work roles, but in the accommodation associated with mining operations. There have been several incidents recorded at Telfer, including four others where staff members were bitten," North said.

MINING SECTOR BACKS RESPECT@WORK REFORMS

The Minerals Council of Australia (MCA) has commended the Australian Parliament for passing significant reforms to prevent sexual harassment in workplaces. These amendments will assist industry by ensuring consistent obligations across anti-discrimination laws, workplace laws and WHS laws. The minerals industry has committed to eliminating sexual harassment in its workplaces and has adopted a national Industry Code that provides clear expectations on members to establish both preventative and response measures to address sexual harassment.

The Sex Discrimination and Fair Work (Respect at Work) Amendment Bill 2021 implements the Australian Government's response to a number of recommendations in the Sex Discrimination Commissioner's Respect@Work Report. The legislation implements the government's commitments in response to recommendations 16, 20, 21, 22, 29 and 30 of the Respect@Work Report, by clarifying that harassing a person on the basis of sex is prohibited under the Sex Discrimination Act.

The legislation also creates a new object clause to clarify that the Sex Discrimination Act aims to achieve equality of opportunity between men and women. The legislation strives to protect more workers from sexual harassment, particularly vulnerable workers, by broadening the scope of people covered by the Sex Discrimination Act and clarifying that members of parliament and judges (and their staff) are covered by the Sex Discrimination Act. The legislation will also extend the time frame for which a complaint can be made to the Australian Human Rights Commission to reduce procedural barriers for complainants under the Sex Discrimination Act. Additionally, it clarifies that a complaint of victimisation can be considered as either a civil or criminal matter.



"This legislation is a critical step forward and will enhance protections against sexual harassment and other forms of sex discrimination in Australian workplaces," said the Attorney-General, Michaelia Cash.

The legislation also amends the Fair Work Act to enable an employee to take compassionate leave if they, or their spouse or de facto partner, has a miscarriage. This measure will reduce discrimination against pregnancy and overall enhance women's economic security. The legislation is also complemented by amendments to the Fair Work Regulations which implement recommendation 31 of the Respect@Work Report.

"Every Australian is entitled to feel safe at work, so this legislation is just one of the ways we are taking action to build a safe and respectful culture in Australian workplaces," the Attorney-General said.



PEAK GOLD MINE HEAT STRESS DEATH LEADS TO \$480,000 FINE

The NSW District Court has convicted and fined Peak Gold Mines Pty Ltd \$480,000 for breaching section 32 of the *Work Health and Safety Act 2011*, following the death of Mark Brilley, a 36-year-old mine worker, near Cobar in western NSW. The Court also ordered Peak Gold to pay the prosecutor's costs.

On 3 April 2017, Brilley was operating an open cabin drill rig about one kilometre below the surface of Peak Gold Mine. An investigation revealed that heat and diesel exhaust gases rose above normal levels when one of two fans that ventilated the underground mine were shut down for the purpose of replacing a fan impeller as part of planned maintenance. This shutdown resulted in low air flow, air flow reversal and air circulation in the upper section of the mine and the concentration of heat and diesel exhaust gases rose to dangerous levels where Brilley was working. Brilley died as a result of this exposure to elevated heat.

Peak Gold pleaded guilty to failing in its duty under section 19 of the Act to ensure workers at the mine, including Brilley, were not exposed to a risk to their health and safety while at work. When handing down his judgement, Judge Scotting noted that Peak Gold knew that the impeller replacement works were likely to adversely affect the ventilation of the mine and could result in dangers to the health and safety of the workers engaged underground while those works took place.

Judge Scotting added that the steps taken by the offender fell short of the standard of care required to ensure the health and safety of workers. "The potential consequences of the risk involved a risk being posed to any person working underground... The risk included a risk of death. The steps that could have been taken to avoid or minimise the risk were simple steps that were known to the offender and involved little expense or inconvenience... The extent of the harm was substantial," Judge Scotting said.

VICTORIA RECORDS TWO FORKLIFT-RELATED DEATHS IN ONE WEEK

Victoria has recorded two separate forklift-related deaths over the span of a single week; WorkSafe Victoria is investigating both incidents. A 25-year-old stonemason died following an incident involving a forklift at a Somerton factory on 12 October 2021. It is understood that the forklift was being operated on a sloping driveway when it tipped and crushed a worker who was standing nearby.

A 49-year-old worker died after an incident involving a forklift in Lara on 16 October. The worker was helping to move a steel rack with a forklift when the rack dislodged and fell on him. Both deaths brought the workplace fatality toll to 45 for 2021.



INDUSTRIAL MANSLAUGHTER CHARGES LAID AFTER FATAL ELECTROCUTION

Queensland's independent Work Health and Safety Prosecutor, Aaron Guilfoyle, has charged MSF Sugar Pty Ltd with industrial manslaughter under the *Electrical Safety Act 2002*, after an incident near Little Mulgrave in far north Queensland in July 2019. A worker was allegedly fatally electrocuted when a crane contacted or came close to overhead powerlines in the course of work on a cane rail system.

The company has also been charged with a Category 2 offence under the *Electrical Safety Act* for breaching an electrical safety duty and exposing multiple workers to a risk of serious injury or death. The charge relates to the same incident and carries a maximum penalty of a fine of \$1.5 million.

The maximum penalty for industrial manslaughter is a fine of \$10 million. This is the first prosecution for industrial manslaughter under the *Electrical Safety Act* since its introduction in 2017. The charges against MSF Sugar will be mentioned in the Cairns Magistrates Court on Tuesday, 7 September 2021. No other charges are expected to be laid over the incident.





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EXTRACTION SYSTEMS FOR WELDER PROTECTION

A HANDY OVERVIEW

Jochen Kemper, Head of Sales Export, Kemper

5000 cases of cancer are linked to the workplace in Australia each year. The most common causes include dusts, chemicals and gases that are released, particularly during welding work. To protect employees, Safe Work Australia (SWA) has a workplace health and safety strategy. In this context, it has developed a code of conduct with possible occupational safety measures for companies. One of the most important of these measures is the integration of an extraction system that reliably detects hazardous substances. But the issue is often associated with major challenges for companies. From source extraction through extraction hoods to general ventilation, the range is so large that it can be difficult to keep track of it all. Here's a handy overview to help.

A safe workplace is important for new employees — occupational safety and ergonomics are becoming increasingly significant. Especially when welding, many hazardous situations occur in everyday working life. Electric shocks, explosions, blinding of the eyes — to name but a few. Particularly perilous for companies and employees are toxic fumes, gases and vapours that are produced during welding processes. Potential consequences are lung damage or, in the worst case, cancer. In Australia alone, about 3.6 million people are exposed to carcinogenic substances at work and their lungs also suffer from hazardous dusts. Lung diseases occur through repeated exposure and, in extreme cases, even through one-time contact with hazardous substances. Proper handling of the substances is essential for companies and employees.

SWA strategy for health and safety

The most common occupational diseases include asthma, asbestosis and pneumoconiosis. To avoid health consequences and ensure safe workplaces, companies need to take some precautions. SWA sets national guidelines, with the Australian Government establishing the body in 2008. On 31 October 2012, SWA launched the 'Australian workplace health and safety strategy 2012–2022'. It is based on two fundamental principles:

1. All workers, regardless of their profession or occupation, have the right to a healthy and safe work environment.
2. Well-designed, healthy and safe work will enable workers in Australia to lead more productive working lives.

The main focus of the strategy is on occupational lung disease. That's why SWA has developed a work plan that is currently being implemented. Its aim: to create awareness of the obligations to remove harmful

substances. In 2016, SWA published a code of conduct on welding. The code of conduct provides guidance for companies to manage the health and safety risks associated with welding. It applies to all workplaces covered by the Work Health & Safety (WHS) Act where welding operations are carried out.

Legal basis and responsibilities

The occupational exposure limit for welding fumes is clearly defined by law. It is currently 5 milligrams per cubic metre. The duty of care and verification of the value lie with the company, but the company does not bear the responsibility alone. Every person involved in the work process contributes to a safe working environment. For example, designers, manufacturers and suppliers of technical equipment and materials must ensure that the materials do not pose risks to health and safety. This duty includes the performance of tests and analyses as well as providing specific information.

Workers have a duty to take reasonable care of their own health and safety and must not compromise the health and safety of others. They have a duty to follow all reasonable instructions and to carry out their work in accordance with all relevant workplace policies and procedures. If personal protective equipment is provided by management, the worker must use it in accordance with the information, instructions and training.

The development of technical measures is now well advanced. There is a wide range of different extraction systems available, for example. Choosing the right equipment is a major challenge for many companies. Which system reliably protects employees from hazardous substances? Is the system suitable for the company? Does it meet all the necessary requirements? From source extraction through extraction hoods to general ventilation, the range is so large that it can be difficult to keep track of it all.

THE STOP PRINCIPLE
sets out the hierarchy of
protective measures.

The **STOP** principle simply explained

1. **Substitution** → Users must check whether the use of low-emission processes is also possible.
2. **Technical measures** → Sufficient protection must be provided by technically effective protective measures.
3. **Organisational measures** → Users must ensure that sufficient protection is also guaranteed by organisational measures.
4. **Personal protective equipment** → If sufficient protection is not ensured with the help of the measures already taken, individually effective measures, such as respirators, are necessary.

Overview: Extraction systems at a glance



Source extraction integrated into the welding torch

If possible, the welding fumes should be captured directly at the point of origin. The closer the extraction is to the point of origin, the more efficient the capture of the hazardous substances. Modern systems offer numerous useful additional functions that make welding work significantly safer and more comfortable. During torch-integrated extraction, the welding fumes are captured directly at the point of origin.



Source extraction with extraction arm

A popular alternative to the torch-integrated variant is extraction with extraction arms. Low-vacuum source extraction is particularly convincing because of its flexibility. In the ideal case, the extraction arms can be freely positioned and are self-supporting, so they remain where the welder has positioned them during tracking. An extraction hood at the end of the arm reliably captures the hazardous substances. With extraction arms in lengths from 1.5 to 10 metres, they also handle larger areas without any problem. Detection is still possible with a distance to the emission source of 300 to 400 millimetres.



General ventilation

Technical general ventilation may be required as an additional ventilation measure. In this way, companies ensure that the limit values for employees at the surrounding workplaces are also complied with. These employees do not carry out any welding work themselves but can be exposed to certain concentrations of welding fumes and gases in the production environment. Extraction is mostly carried out at a height of three metres or more. A distinction is made in general ventilation between mixed and layered ventilation. Layered ventilation draws in the rising polluted air in order to return it filtered to ground level. With mixed ventilation, air is supplied to the hall via grilles on the ceiling. The general ventilation air is then mixed.



Personal protection measures

According to the STOP principle, personal protective measures are necessary if welding fume extraction is not sufficiently possible for technical reasons. In that case, the employer is obliged to provide their employees with suitable equipment. For protection, use of the following respirators is recommended:

- Ventilated helmets or hoods
- Masks with blower and particle filter
- Full face masks or mouthpiece sets
- Self-contained respirator devices (eg, ventilated helmets/hoods with external air supply)

In order to integrate the right extraction system, companies must familiarise themselves with the many possibilities. Various factors and circumstances of the company are decisive and influence the choice of extraction system. A combination of different systems is also possible in order to protect the health of employees in the best possible way and to create an attractive, safe workplace.

Occupational safety as a process: campaign for healthy lungs

The preceding descriptions prove one thing above all else: there has been significant progress in occupational safety in the past few years. Today's welding workplaces are safer than ever before, not least thanks to efficient and powerful technology. Another reason for this is SWA's ongoing efforts to promote safe workplaces and worker health. Since its founding year in 2008, the organisation has achieved a lot with codes, guidelines and awareness campaigns, creating a growing awareness of the issue — both among employees and companies. But occupational safety and health is a process that is constantly evolving and is far from complete. At the same time, it is a complex issue that requires continuous education and guidance in companies. The organisation is working on this through various national campaigns under the slogan 'Clean Air. Clear Lungs'. SWA, in cooperation with the Lung Foundation Australia, is calling on companies to educate themselves further about the topic. The motto: create even safer jobs in the future through information and education.

Kemper GmbH
www.kemper.eu



Checklist

An extraction hood should fulfil these criteria:

- ✓ 360° swivelling: easy tracking increases the likelihood that the breathing zone never enters the smoke cone.
- ✓ A flange-shaped cover on the sides prevents sucking in false air, preventing it from reaching the air cone. The hood achieves a 40% higher extraction rate than purely oval hoods.
- ✓ Integrated light for better visibility of the workplace.



Image credit: Kemper GmbH



Light electric vehicle charging stations

Siemens Australia and WA mining services supplier Murray Engineering have developed a high-powered electric vehicle charging station for use at mines both below and above ground. The vehicle agnostic charging stations will be used to power a new light electric vehicle (eLV), providing a holistic fully enclosed solution, designed to handle the tough mining conditions in Australia.

The first of the eLVs will be ready for testing by the end of the year, with potential application at mine sites by mid-2022. Siemens Siccharge UC high power DC chargers will provide a flexible output range from 125 to 600 kW, enabling charging stations to scale for light, medium and heavy vehicles.

Murray Engineering will design a heavy-duty enclosure to protect the unit from harsh underground conditions and enable ease of manoeuvrability. The enclosures will be air conditioned to protect the chargers and will have human machine interface

(HMI) panels on the outside to control the unit. These units will allow vehicles to be fully charged in minutes, rather than hours.

Many existing electric vehicles designed for mining are matched to their own charging station, making the solution inefficient in the long run. The solution developed by Siemens Australia and Murray Engineering will be vehicle agnostic, with the potential to be scaled up as required.

Siemens Ltd

www.siemens.com.au

Air safety fuses

If a pressurised air line bursts, or a hose coupling accidentally releases, this can result in a thrashing hose becoming a dangerous projectile. The dangers increase dramatically if an air tool is attached, or the line is a large diameter. Installing an air safety fuse can eliminate whiplash hazard and guard against accidental puncture or unexpected maintenance issues.

Protect-Air HoseGuard air safety fuses offer simple and effective protection of employees, machinery and equipment. The HoseGuard immediately shuts off the air flow should the volume of air exceed a set value. This value is factory preset to allow normal air consumption when using air tools.

In the event that the air line is severed and the air consumption exceeds the set value, an internal piston instantly shuts off the main flow. An integral bleed hole allows a small amount of air to flow through, enabling the HoseGuard to automatically reset once the main break is repaired.

The lightweight and compact device is suitable for all industry situations where compressed air is used. It is available in aluminium and 316L stainless steel.



Compressed Air Australia Pty Ltd

www.caasafety.com.au

Cold-resistant glove

The Ninja Celsius Ice cold-resistant glove provides thermal protection, liquid resistance and enhanced grip and dexterity for cold applications. When working in cold environments, manual tasks can lower body and hand temperature, making handling and gripping objects more difficult. This can increase the risk of hand and arm grip force reduction, leading to a decrease in blood flow to muscles, thus increasing fatigue and the chance of injury.

When selecting gloves, consideration must be given to the most appropriate product for the temperature or the tasks being performed within the environment. Factors such as insulation, fit, flexibility, dexterity, job role and hazard must be considered. Choosing quality hand protection will aid in avoiding potentially serious health risks like frostbite, fatigue and accidents on the job.

The Ninja Celsius Ice gloves have a range of safety features, including advanced proprietary Hydropellent Technology (HPT) Coating on the palm and fingertips that remains soft and flexible in temperatures as low as -20°C. The gloves are also liquid resistant, to keep hands comfortable and flexible in cold applications.

A Thermsmart nylon and acrylic double-knitted liner provides thermal protection, while breathe smart technology lends 360° breathability for the hands. A non-slip surface also provides added dexterity and grip in cold and wet applications. The gloves are made using Fit Smart technology, with a high-visibility option available for low-light applications.

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Respirators

CleanSpace Respirators provide all the protection of a powered air purifying respirator (PAPR), while being free from belts, battery packs and hoses, making them more comfortable and easier to deploy. CleanSpace respirators are positive pressure PAPRs that offer a high level of protection for frontline workers. The respirators are lightweight and comfortable to wear over long periods.

The respirators also feature CleanSpace patented AirSensit technology that is breath responsive, to deliver filtered air on demand. The respirators are also certified AS/NZS 1716 standard approval for respiratory protective equipment (RPE). As they are reusable, they reduce costs and reliance on supply chains and stockpiling.

The respirators offer high protection, with 99.95% filter efficiency, and are lightweight and comfortable, weighing 500 g. The respirators have a long battery life (up to 9 h) and feature fast recharge. They are also compatible with other PPE such as helmets and safety glasses.

The CleanSpace industrial models include the CleanSpace EX, which is intrinsically safe and can be worn in potentially explosive environments such as mining. The CleanSpace ULTRA is IP rated 66, making it water-tolerant and suitable for stonemasons carrying out wet-cutting. CleanSpace 2 can be used in a variety of industrial applications where water tolerance or intrinsic safety is not required.

CleanSpace Technology is a Sydney-based manufacturer of respiratory protection equipment for healthcare and industrial applications.

CleanSpace Technology Pty Ltd
www.cleanspacetechnology.com



Web- and mobile-based learning solution

Affirmer has developed a web- and mobile-based learning solution that provides customised learning for workers, together with insightful tools and actionable reports to best support staff and managers' knowledge requirements. The platform is simple to set up, easy to use, and integrates with existing systems. Harnessing the benefits of micro learning, including short video-centered courses and quizzes, the platform provides high entertainment and measurable value from employee learning activities.

Employing a range of digital technology including AR, VR and animation, Affirmer keeps the content fresh, interactive and

enjoyable. These focus areas of relevance and engaging content, together with the flexible ways of undertaking the learning, promote high engagement rates.

The courses can be used for on boarding new or temporary staff, periodic knowledge refresher testing, or targeted to address risks or incidents that require staff to be supported with additional training. The learning can also be aligned to key targets, so as to measure the improvement gained from the learning undertaken. Managers are supported with tools and actionable reports that provide flexible support to staff and provide insights into the learning patterns and knowledge gaps of work groups or individuals. The platform enables natural team work in managing timely and efficient learning.

With 24/7 local support and training, free upgrades, flexible customisation of content, interactive communication, and powerful reporting tools, Affirmer provides a complete and innovative solution that delivers transformative learning to the workforce.

Affirmer
www.affirmer.com.au

General-purpose gloves

The Ninja Maxim Evolution General Purpose Glove comes with a number of smart technology features, such as a highly durable yet lightweight inner liner which provides comfort and wicks moisture, keeping hands dry. The glove also features the latest Screen Smart touchscreen compatibility and a premium nitrile foam coating that provides dexterity as well as a good wet and dry grip.

These general-purpose gloves are made with innovative materials that provide long-term protection across a broad range of applications and environments. These innovative gloves are designed to feel like a second skin; breathable and comfortable enough for all day wear. These factors are intended to improve compliance and thereby reduce workplace injuries — many of which occur from workers doing general, seemingly innocuous tasks.

Bunzl Safety
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ITS IMPORTANCE DURING THE PANDEMIC



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A strong safety culture is a key goal for any organisation, because every worker in Australia should always work safe. But with regulations increasingly putting more responsibility on the individual worker and additional pressures being brought on by the pandemic, how can safety professionals and workplaces ensure that safety is kept front of mind?

A strong safety culture can be defined as that which upholds an unwavering commitment to safety. Team members on all levels show unrelenting focus on creating and maintaining a safe workplace and this commitment is evident in the beliefs, values and attitudes of both the organisation and its people. You'll know you have a strong safety culture when employees do what they need to do to keep themselves and others safe without thinking. It takes time and continued focus to build this type of culture, and relies on a collaborative effort between employee and employer.

A few key fundamentals include:

- a commitment from leadership to making safety a priority;

- clearly defined safety responsibilities for each level within your organisation, including policies, goals and objectives;
- good two-way communication on all levels of the organisation;
- providing ongoing training and support for all team members;
- continuous monitoring and tracking of progress;
- preventing incidents by analysing the working environment and hazards, and uncovering trends.

Management teams need to lead by example and set the bar high. Involving ground-level teams will help build commitment to the process and any changes. It may also provide greater insight into which control measures may be most effective. Often workers will



MANAGEMENT TEAMS NEED TO LEAD BY EXAMPLE AND SET THE BAR HIGH. INVOLVING GROUND-LEVEL TEAMS WILL HELP BUILD COMMITMENT TO THE PROCESS AND ANY CHANGES. IT MAY ALSO PROVIDE GREATER INSIGHT INTO WHICH CONTROL MEASURES MAY BE MOST EFFECTIVE. OFTEN WORKERS WILL SHARE SUGGESTIONS FOR IMPROVEMENTS THAT CAN POSITIVELY IMPACT SAFETY BEHAVIOURS.

share suggestions for improvements that can positively impact safety behaviours.

Managing competing priorities is part of all businesses, but the challenge of balancing productivity and output with safety is an important one for workplaces to get right. We've recently been presented with global supply chain issues, but also accelerated e-commerce. Restrictions placed on physical retail stores has seen many businesses and consumers move to online retailing. According to the Australian Bureau of Statistics, in January 2021, online sales had increased 62.8% compared to January 2020. This undoubtedly puts pressure on logistics and warehousing industries where workers need to do more with less time to meet consumer expectations.

It's understandable that with this added pressure, you're also at higher risk of workers cutting corners, unless you reinforce what's important. It comes back to that leadership commitment to show that working safely is more important than hitting the deadline. Another key to overcoming the challenge of increased pressure is to review manual processes that may slow workers down and to reassess resourcing. When workplaces overcome these challenges and engage their teams to stay safe, there are numerous benefits from having a strong safety culture. Reducing injuries and the cost associated is just one of many.

The most common workplace injuries are due to body stress and falls, trips and

slips, and direct costs such as workers compensation claims and legal fees are just the tip of the iceberg. Indirect costs such as lost productivity are estimated to equal up to 10 times greater than direct costs. According to Safe Work Australia, from 2018–2019, more than 114,000 serious workplace injury claims were recorded in Australia, with the majority coming from agriculture, manufacturing, transport and warehousing industries. Aside from saving lives and protecting the operations of the business, having a culture where everyone works safely is likely to result in happier, safer and more productive employees and a better place to work.

Winc Australia Pty Limited
www.winc.com.au

Queensland invests in safer heights future for construction



As housing construction experiences significant growth in the Sunshine State, the Queensland Government has invested in Gold Coast company Buildsafe through the \$100 million QIC-managed Business Investment Fund (BIF), in partnership with Colinton Capital and Minderoo, to make the industry safer. Queensland Treasurer and Minister for Investment Cameron Dick said supporting high-growth businesses is central to the state's COVID-19 Economic Recovery Plan, and the government will be working with Buildsafe to create more local jobs. "Queensland dwelling approvals are up more than 37% since May 2020, generating significant demand for the building height safety solutions provided by Buildsafe. With Buildsafe's 20-year track record of innovation and development, the company are in a strong position to capitalise on Queensland's construction boom, and our investment will ensure they do. It will allow Buildsafe to hire more than 40 new staff and increase production of their industry-trusted products," said Minister Dick.

Buildsafe provides end-to-end height safety solutions, including fall-guards, scaffolding, walkway systems, void platforms and temporary fencing, to companies such as Metricon, Mirvac, Coral Homes and Brighton Homes. In 20 years, the company has progressed from a few staff to almost 500 employees. Touring Buildsafe's Arundel headquarters with company co-founder and CEO Milton Young, the Minister said the government's stake in Buildsafe was the second strategic investment made through the BIF. Minister Dick added that the Business Investment Fund

increases access to growth capital for Queensland businesses, with two investments now complete in Buildsafe and Gilmour Space Technologies. "Backing Queensland businesses to innovate and grow, strengthening supply chains across the state and creating new jobs for Queenslanders is what our economic recovery plan is all about," he said.

Buildsafe CEO Milton Young said the Queensland Government's support will help the company secure more jobs, continue research and development, and contribute to the state's economic recovery. Young asserted that the company strives to remain a leader of the industry, and to continue providing state-of-the-art site safety and a dedicated customer service team to grow and strengthen the construction industry. "Buildsafe is an Australian-owned, national business, spread across three states; however, we can see the growth potential that Queensland offers, which is why we have chosen to drive our head office and business here," Young said. Colinton Capital Partner David Slocomb said Buildsafe has a consistent 20-year track record of growth, with an industry-leading focus on product innovation, safety and customer service excellence. "Co-investing alongside the founders, QIC and Minderoo, we are pleased to assist Buildsafe to accelerate their growth," Slocomb said.

Buildsafe
www.buildsafe.net.au



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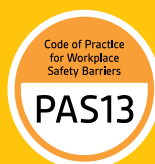


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AT HEIGHT RISKS IN CONSTRUCTION

A MORE HOLISTIC APPROACH

Scott Barber, Chief Executive Officer, Working at Height Association*

When it comes to deaths and serious injuries resulting from falls from height, construction workers top the list. Despite a focus from regulators, a more holistic approach is needed to improve worker engagement and manage risks through fall protection measures, training and environment-specific solutions.



UTILISING A COMBINATION OF FALL ARREST SYSTEMS, EDGE PROTECTION AND SAFETY EQUIPMENT, INCLUDING PPE AND TOOL LANYARDS, WILL LEAD TO A REDUCTION IN INCIDENTS IF USED CORRECTLY.

These findings paint a clear picture; despite the focus from regulators and the ever-present risk of working at height, it appears that there is still a lack of engagement with best practice around the management of the key risks despite the devastating effects on workers' wellbeing and safety. What is also clear is that there is a decisive link between the nature of the environment where these incidents occur and the resultant statistic whereby 22% of the worker fatalities in the construction sector occur from what can be described as 'at-height' incidents.

The dangers

The outcomes of falls in the workplace are more likely to be life-threatening when compared to many other incident types. While other common mechanisms of injury, such as manual handling, overexertion, and vehicle or machine accidents are more likely to cause injury to a particular body part, the injuries resultant from falls can easily have wider-spread complications that can affect the whole body, cause significant damage to vital organs and, if not directly resulting in death, have life-altering, long-term consequences.

In other words, working at height may not be the most common incident type, but when incidents do occur, they are much more likely to be fatal compared with other occupational hazards. With such potential consequences, there is a need to address work at height as a broader risk profile. Increasing awareness around the potential for harm and the methods for avoiding these hazards will create more effective engagement and eventually lead to a reduction in events. Knowledge is power, so underestimating and devaluing the high-risk nature of the work environment, and consequently, the level of competency required to operate safely in these spaces, leads directly to a higher incident rate. Ensuring those working at height are educated sufficiently to assess risk appropriately and manage it accordingly is the key to the reduction in these statistics.

Using safety protection correctly

Effective fall protection depends on an informed choice of equipment, the knowledge of how to use it correctly and how to safeguard oneself and others from potential hazards. Workplace safety is, therefore, a two-step process that involves technical support from safety systems and personal protective equipment (PPE) that can shield and protect in dangerous situations and secondly, human support in the shape of comprehensive training, instructions in

According to Safe Work Australia data, the workers most at risk of death and serious injury as a result of falls from height are those in the construction industry. The most recent published statistics indicate that there have been 122 fatalities attributed to falls from heights over the past five years, accounting for 13% of all worker fatalities over that period. The figures also indicate that even though serious workers compensation claims resulting from falls from heights declined by 17% between 2009–10 and 2018–19, falls from heights still accounted for 6% of serious claims. If we reference the latest data, the 2019 statistics, they indicate that of the 183 fatalities over that 12-month period, 11% are credited to falls from height and another 11% attributed to falling objects. That's a total of 42 deaths with an aligned mechanism of injury.



the form of safe work method statements and expert guidance and advice. Neglecting either of the two will potentially lead to deficiencies in safety systems, resulting in breaches of procedure and a more exposed worksite.

Only professional, competent health and safety specialists can advise on how to design effective solutions and increase compliance while accounting for site-based and case-specific conditions. Safety equipment has become vastly more effective and affordable in recent years, making it easier to choose the right solution for specific tasks. This is a shift from specifying a one-size-fits-all solution and the assumption it will provide protection regardless of task specifics. Utilising a combination of fall arrest systems, edge protection and safety equipment, including PPE and tool lanyards, will lead to a reduction in incidents if used correctly.

Applying the hierarchy of controls informs and frames the most suitable approach to solutions modelling, so engaging with a subject matter expert will help identify the most suitable path forward. But ultimately, correct use is the key; even the newest and most expensive equipment cannot be effective if the worker does not know how to use it properly. While there are many guides on equipment selection, these guides are based on a hypothetical application and assumptions around work environment and do not provide the unique risk-profile and informed criteria that can only be determined by truly competent subject matter experts, be they internal or external consultants. Combined with practical training, not just theory-based working at height courses, operators at height can apply the tools and techniques more efficiently, empowering individuals to make safer choices without needing to compromise due to poor equipment selection.

Therefore, safety training should be a top priority for any company, regardless of the size or the industry. Safety training, performed by professional subject matter experts at regular intervals, will educate crews on how to use the equipment, how to spot a potential hazard, and maintain skillsets and a safety culture in the workplace that will inspire more awareness and interest in working safer. Applying application specifics into training packages allows for the inclusion of the safe use of tools and tool lanyards in height-based work environments. Including

these processes into a formal work method helps mitigate the risk of dropped objects highlighted in the statistics.

The future of fall protection

At a state and territory level, SafeWork and WorkSafe are running fall prevention campaigns as part of an initiative to decrease the number of victims of falls from height. This includes the highlighting of dropped objects as a significant contributor to injury and fatality statistics. In the end, however, even with the active campaigning from regulators, the responsibility for creating awareness among a workforce and instituting change when it comes to safety culture and processes lies with the employer. But by empowering those who work at height with the suitable knowledge and skill sets to appreciate the true nature of the risk, an effective multilateral approach can be applied.

The future of safe working at heights will be decided in close cooperation and collaboration with those directly affected by it, the employees. Ensuring appropriate training is provided as a key component of all at height tasks and not relying on 'tick-the-box' approaches to safety training ensures operators are prepared and able to continually assess hazards throughout the task, with situational awareness being supported by actual competencies. Companies that look at safety as a task that can be handled on the executive level are taking the wrong approach. An understanding of safety culture will only reach the worker if they are engaged, skilled and involved in the discussion, and only then can all work together to reduce fatalities.

**Scott Barber is a professional marketer, copywriter and safety specialist with over 20 years' experience designing, driving and facilitating communication and education as a fundamental engagement tool. Specialising in safety and rescue, both operationally and as a consultant, he uses his experience across multiple industries to deliver solutions, targeting specific stakeholders using communication as the critical driver for change.*

Working at Height Association
www.waha.org.au

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The ergonomic soft touch handle minimises hand stress while the recessed blade reduces cut injuries and damage to goods. Built-in antimicrobial properties protect the product by inhibiting the growth of many bacteria, including influenza, *E. coli*, and *Staphylococcus*.

Diplomat Blades Aust Pty Ltd

www.diplomatblades.com.au



Air knife

Compact Super Air Knives produce a laminar sheet of airflow to blow off, dry or cool surfaces up to 108" (2743 mm) wide. The energy-efficient design minimises compressed air use by entraining 40 parts room air to one part compressed air used. They are designed to blow corrosive chemicals off parts, dry food products and cool hot materials such as molten glass, castings and moulded parts.

Super Air Knives provide a uniform, high-volume, high-velocity curtain of air that is adjustable, from a gentle blowing force to a hard-hitting blast of air. The compact profile measures 45 mm (1.75") x 37 mm (1.44") with compressed air inlets located on each end and the bottom to permit easy mounting in tight spaces. Super Air Knives are very quiet at 69 dBA for most applications, maintenance-free and have no moving parts to wear out. They are CE compliant and meet OSHA dead-ended pressure and noise requirements.

EXAIR Super Air Knives are offered in many lengths from 3" (76 mm) up to 108" (2743 mm) in a variety of materials that include aluminium, Type 303 Stainless Steel, Type 316 Stainless Steel and PVDF plastic. A factory-installed plumbing kit makes it easy to connect longer lengths of Super Air Knives to any plant compressed air system and obtain the best performance.

Compressed Air Australia Pty Ltd

www.caasafety.com.au

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The Sensor People have been setting technological standards in industrial automation for more than 50 years. In the field of safety at work, we convince from the start with trend-setting inventions, such as the development of the first protective sensor ever, to our latest safety innovation, "Smart Process Gating" – the space-saving solution for access guarding on conveyor lines. This is how we ensure the success of our customers in an industry that is ever evolving.

Safety at Leuze



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COREX steel protection fire-rated board

COREX is a lightweight, high-impact-resistant, fire-rated board designed for steel protection. COREX provides a robust method of steel fire protection and is quick to install, with reduced risk of application error. Structural steel members often require fire protection to prevent collapse in the event of a fire. Under high heat, the material properties of the steel change, making collapse likely. To prevent this, the members can be clad in COREX to provide an AS4100 fully compliant and fire-tested thermal insulation barrier.

COREX is non-combustible, lightweight and sustainable, with low thermal conductivity. The board is fire tested for all structural steel sections, with no separate metal framing required. The board can also be installed quickly, with the use of staples.

Trafalgar Group

tgroup.com.au

Construction management software service

Procore Technologies, a provider of construction management software, has launched Safety Essentials to support Australian and New Zealand construction companies in aligning with guidelines from the Australian Office of the Federal Safety Commissioner (OFSC) pertaining to COVID-19.

The content-as-a-service offering will be available at no additional cost to all customers using Procore Quality & Safety. Procore Safety Essentials offers pre-built forms, inspection templates and folder structures within the Procore Platform to give ANZ customers a head start on managing quality and safety compliance. Procore also provides reporting capabilities, helping customers save time and reduce the potential for human error by streamlining the arduous process of collating and analysing data for audit purposes.

Large businesses in particular could benefit from having a software platform that enables them to collect and interrogate safety data from across the business during the global pandemic.

Safety Essentials is designed to reduce administrative workload by consolidating safety documents, processes and compliance on a single platform. In conjunction with its data integration abilities and reporting tools, Procore Safety Essentials can help customers cut through red tape and keep up with the latest safety standards.

Procore Technologies, Inc.

www.procore.com



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- 1 x SLH-30 Stainless Steel Lockout Hasp
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Other great value Lockout Kits are also available – including custom made Lockout Kits. The CLK – kits are made in Australia by Cirlock, Australia's original lockout manufacturer. Items can also be purchased separately.



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WEARABLES FOR INJURY PREVENTION: EVIDENCE OF THE BENEFITS OF SHORT & LONG-TERM USE



Image credit: Soter Analytics

Tara is a theatre orderly at a hospital in Perth, Australia. Every shift she puts on an arm strap with a device attached that collects information about her shoulder movements throughout the day. The device alerts her if she is at risk of injury or strain when certain accumulative thresholds have been met. It's calibrated using international standards based on epidemiological studies pertaining to movements that lead to increased risk of injury.

Andy is a meat packer in the refrigerated meats department at a large supermarket chain in the US. Each shift he collects a device from a docking hub, scans it and checks his movement activity from the day before to see where he needs to improve, and then clips it to the collar of his shirt. Today he is working on reducing his number of back twisting postures. The device has helped him understand where and what time he usually performs high risk movements and assists his correction.

Troy is a warehouse picker packer at a leading distributor of building materials in the UK. Every 3 months his employer hands him a small wearable device that monitors his back posture throughout the day. He wears it for 10 days. The device alerts him to re-position himself if he is in a compromised posture or performing faulty or repetitive movement. It helps him understand his movements and avoid injury or pain at the end of his shift.

These scenarios, although fictitious, are a realistic insight into how organizations around the world are weaving wearable technology into their ergonomic processes. Solutions to assist workers to learn more about their movements, understand them, and help reduce their risk of injury — permanently.

What these organizations do know however is that the technology is not a panacea. Like cheese is to wine, wearable technology is a fantastic accompaniment to existing safety strategies, not a complete meal. Musculoskeletal injuries in the workplace are a complex problem that require multi-pronged programs and interventions from both humans and technology. One mistake that is made when using wearable technology for safety is to believe it is the answer to all pain points. Newsflash. It's not.

As the shift into industry 5.0 suggests, the idea is to benefit from the union of human and machine and with both forces joined, have the superpower to make a difference and save lives. Using wearables for real-time feedback to assist workers to self-correct their movements and simultaneously taking data from the real world and decoding it in the virtual world to provide answers and give actionable information. The variety of statistics received from the data is endless, from simply revealing where risk lies, right through to psychosocial barriers. The key is, like every marriage, for it to work, both parties need to do their part. You need skilled people assisting and able to work the data in ways that highlight, approach, utilize and interpret from different angles, as well as workers keen to change their behavior and collaborate to find solutions.

When used to full potential, there is no end to the benefits of wearables and the data they collect. Like the gift that keeps on giving, the more you understand their possibilities the

more the innovation can assist you in finding new pathways to reach safety goals.

Case Studies

The practice of using industrial wearables for injury prevention has now been implemented and deployed by multiple organizations across the globe for extended periods. According to ergonomists, to calculate ROI from an ergonomics program, meaningful and feasible results can be counted mostly after three years.

Here, Soter Analytics presents strong evidence for the use of wearable technology and data analytics to reduce injury risk in industry for periods from one to three years.

The wearable technology solutions by Soter Analytics were first implemented in 2018 within BSS Industrial, UK market-leading distributor of pipeline and heating solutions. Now, more than three years on, not only has the technology increased the safety culture of the company by developing the trust of the workers by transferring the responsibility of safety into their hands, the company has also seen on average a 43% injury risk reduction in the highest risk group. This group has shown continual improvement, initiating with an injury risk reduction of over 36% in the first year and increasing to 52% this year so far. With around 1000 programs completed they have potentially had a continual reduction of approximately 720,000 postures per year that lead to increased risk of injury.

St John of God Subiaco Hospital is a world class private hospital in Perth, Western Australia offering the highest quality medical and surgical care. They initially deployed the technology in 2019 and the results have proven a steady decrease in injury risk for workers. With the use of the Soter wearables building awareness and encouraging caregivers to change their manual handling technique through real-time feedback leading to long-term changes in movement behavior.

Giant Eagle is one of the top 75 North American food retailers, with 32,000 employees, operating 474 stores, and is the 32nd largest privately held company in the US. They began over 4 years ago, implementing the Soter wearables back in 2018 and have continued to decrease their risk of injury through consistent biofeedback training from the devices and using data driven metrics to effect controls. Their average ratio for correcting the posture of associates each year since 2018 has shown results anywhere from 22% right up to 46% improvement.

The use of technology and its collaboration with existing processes and yielding clever data driven techniques is an update on outdated and inaccurate ergonomic assessment. Combined with a consistent and engaging approach to manual handling without the loss of time to a classroom, allows on-site ergonomists to deploy their time to solving problems rather than trying to find them, increasing the safety of workers.



Soter Analytics
www.soteranalytics.com

Saliva-based drug testing tech drives bus group safety



Busways Group is an Australian private bus operator, focused on delivering quality services, innovation and continuous enhancements for clients and communities in its contracted regions. Its core focus is on safety, quality customer service, stakeholder engagement and employee development. Busways first partnered with Alcolizer Technology in 2005, with the purchase of its first Alcolizer breath testing devices. Over the past three years, Busways has upgraded its entire fleet to the latest Alcolizer LE5 breathalysers. When the AS3547:2019 changes were announced, Alcolizer Technology provided Busways with regular updates on the implications of the changes and what they meant for Busways' alcohol testing program. After a period of consultation, Busways upgraded its fleet to the latest Alcolizer LE5, certified to the updated AS3547:2019 standard. Based on a strong working relationship with Alcolizer Technology and through its positive experience with the Alcolizer LE5 device, Busways committed to trialling the Druglizer LE5 Drug Tester device, for the purpose of undertaking in-house, saliva-based drug testing.

Alcolizer Technology conducted live testing trials with Busways at its depots to demonstrate the performance and benefits of the Druglizer solution, spending time to understand how the devices were utilised and the outcomes Busways required. When combined with the data management tools available from Alcolizer Technology, Busways was able to implement a complete alcohol and drug testing solution integrated with its existing data and reporting requirements. This comprehensive engagement program helped Busways adopt the Druglizer LE5 Drug Tester as its drug testing device of choice. For more than 78 years, Busways has delivered a

safe, professional and reliable standard of service. The company currently has a fleet of more than 900 buses and operates bus service contracts for Transport for NSW in Western Sydney, the Central Coast and North Coast and the South Australian Public Transport Authority in Adelaide's Outer South. With a team of more than 1750 people, committed to transporting more than 26 million passengers each year, Busways takes a proactive approach to public transport delivery to ensure the customer's journey is as safe as possible.

When Busways expanded into the Adelaide bus market, Alcolizer Technology supported the expansion with the Alcolizer and Druglizer LE5 system, and continues to support the growth of use of Le5 systems in Busways' north coast depots. The new technology for Druglizer LE5 implemented with this trial required a number of technical enhancements to enable Busways to assimilate the device and its results into existing reporting and management systems. Alcolizer Technology's commitment to work with Busways and tailor software solutions to meet business needs led Busways to purchase a number of Druglizer LE5 devices and commence in-house, saliva-based drug testing across all depots and offices. The Druglizer LE5 offers Busways three main advantages in its drug testing: speed, accuracy and economy. Using the Druglizer LE5 takes 70 to 150 seconds for a complete test to be performed successfully.

The Druglizer LE5 is electronic and displays accurate results on the device screen, clearly indicating the exact test result as opposed to legacy technology products that display indicator lines requiring interpretation. These lines can also pale, resulting in confusion regarding the result. The Druglizer LE5 has minimal waste, as it uses a chip-enabled cartridge that prevents tests



being undertaken on expired cartridges and delivers a fast result, minimising labour and time spent testing. The Druglizer LE5 uses oral fluid, the preferred testing method at Busways; this presents a 'people friendly' approach to testing as it is quicker and less invasive than alternative methods, such as urine testing. Alcolizer Technology's solutions deliver quick and accurate testing, thereby minimising disruptions to employees' day-to-day routines. All Alcolizer Technology products and services are designed for high-volume demanding industrial environments.

On-site drug testing services in accordance with best-practice procedures are also available from Alcolizer Technology, using the Druglizer Le5 Drug Tester and other testing devices. This provides swift and effective screening of employees for the presence of performance-impacting drugs that might otherwise compromise workplace health and safety, in a manner that is quicker than legacy test methods, with minimal personal intrusion. Alcolizer Technology also provided comprehensive staff training programs to ensure consistent and effective use of alcohol and drug testing technology in Busways' workplaces. This was supported by a national footprint of Alcolizer Technology service technicians, who assisted Busways when and how they needed it. "Busways is extremely pleased to use an Australian-owned manufacturer and developer in its ongoing commitment to ensuring the safety of its employees and passengers," said Busways' Risk and Compliance Manager. "The adaptability, ease of calibrations, reliable service and prompt supply of testing devices together with training and support supported our decision in partnering with Alcolizer Technology."

Alcolizer Technology
www.alcolizer.com

Emergency and exit lighting

Stanilite provides state-of-the-art systems and products for the emergency lighting marketplace. The company's products and services are designed to provide effective protection and safety, in line with customer needs, relevant industry standards and regulations. Stanilite emergency lighting solutions are designed and manufactured under the ISO9001 Quality Management System, to provide reduced failure rates and a higher quality of finished products for the Australian market. The company offers a comprehensive portfolio of products to suit individual budget and project requirements.

Many Stanilite products are engineered to a modular design format, which promotes straightforward, cost-effective installation and maintenance. Modular design enables first-fix installation of the key wiring components with later connection of gear trays, diffusers and edgelit, to facilitate the easy management and replacement of parts. The Stanilite concept is clear and simple, and strives to provide a reliable, total solution for safe evacuation.

The Quickfit range employs LED technology, for good light source performance and longevity. It is coupled with pulsetime control of battery charging, which maximises battery life. The range is compatible with existing Quickfit mounting brackets and available in a frame-only configuration which will accept existing Quickfit diffusers. Upgrading existing installations to the latest technology is simple and cost-effective.

The Spitfire range is designed to provide high visibility whilst remaining architecturally pleasing with a modern and unobtrusive design. A full range of products are available in recessed, surface mount and weatherproof surface mount variants in standard, Nexus LX and Nexus RF. Single and dual LED fittings are also available. Stanilite also offers clear installation manuals and a modular system to facilitate easy installation.

NHP Electrical Engineering Products Pty Ltd

www.nhp.com.au





Women's safety boots

Blundstone has expanded its selection of durable and premium boots with the launch of two new styles in its Women's Composite Series. The new boot styles #883 and #887 extend Blundstone's Women's Safety Series to provide additional options for a range of industries in lightweight, airport-friendly designs. Style #886 will also be relaunched to provide a cohesive women's composite toe cap series.

Blundstone's Women's Safety Series is designed and made for women and tested by women, to provide a high-quality fit for those who rely in safety footwear to get the job done.

Blundstone #883 (RRP \$165.00) features a black, breathable nylon upper with a grey trim, and an anti-bacterial, washable and breathable footbed. The lightweight, jogger style safety shoe also comes with both elasticated and standard laces, and featured a composite toe cap, slip-resistant rubber outsole, TPU toe guard and heel torsional stabiliser. The style also features a removable PU foam footbed with XRD Extreme Impact Protection heel insert for greater shock absorption and comfort.

Blundstone #886 (RRR \$165.00) features a black, water-resistant upper, a slip-resistant rubber outsole, and a neoprene panel for reduced foot stress. The slip on style safety shoe also features an anti-bacterial, washable and breathable footbed, and a composite toe cap. It also includes a removable PU foam footbed with XRD Extreme Impact Protection heel insert, and a TPU toe guard and heel torsional stabiliser.

The Blundstone #887 (RRP \$197.00) is a hiker-style boot, with YKK zip side and laces for a personalised fit. The boot also comes with purple laces and purple neoprene Achilles cushioning, for ankle support and comfort. The safety shoe features a black, water-resistant upper with purple trim, a composite toe cap, slip-resistant rubber outsole, and an anti-bacterial, washable and breathable footbed. The shoe features a removable PU foam footbed with XRD Extreme Impact Protection heel insert and a TPU toe guard and heel torsional stabiliser.

Blundstone boots are available online and in stores via select retailers throughout Australia and are backed by a 30-day comfort and six-month manufacturing guarantee.

Blundstone Australia Pty Ltd
www.blundstone.com.au

Composite anti-slip stairway cleats

The U-Tred Pro Composite anti slip stairway cleats are made from fully composite polymer and feature the exclusively made Nano555 Higher-Viz Green colour. This shade of green is designed to cut through the traditional safety yellow 'white noise' that is common on industrial sites. The anti-slip stairway cleats are suitable for sites with slippery stairs or walkways.

When looking down a stairway or Gridmesh, or other metal grating, it can be difficult to determine where the leading edge of each tread is and where it starts and stops. With a clear line defining the edge of grating, the U-Tred PRO grate cleats are designed to stand out.

The offset lug pattern on the top surface is a feature that was not previously incorporated into the design. Behind each lug, the top of the tread is sloped so that when any mud on the top dries, it slides back off the tread, leaving the lug exposed and ready for use. The lugs maintain the aggressive profile, but are angled back, slightly towards the centre. This is to stop people who drag their feet when they walk from getting their boots caught in the tread.

The U-Tred PRO incorporates the same self-locking non-return barbs as the traditional U-Tred. The barbs clip under the bottom of the mesh when installed, meaning they can't be removed and won't wriggle loose.

As the U-Tred PRO grating cleat is made from a composite polymer, it can also be used on offshore oil rigs and other marine platforms where metal-on-metal contact is to be avoided. The composite construction also means they cannot rust.

Amco
www.amco.net.au





SILICA DUST BETTER RESPIRATORY PROTECTION IS NEEDED

Jon Imms, Global Technical & Product Director, CleanSpace Technology

Crystalline silica is a natural mineral found in construction materials such as concrete, bricks, tiles, mortar and engineered stone. Silica particles are much smaller than a grain of sand and are harmful to inhale into the lungs. This makes respiratory protection, powered respirators especially, vital.

Workers are regularly exposed to a range of workplace hazards that have the potential to impact their quality of life and in some cases life itself. The resulting injuries for many workplace hazards are either immediate or quickly recognised; however, injuries such as those to the respiratory system often take many years to make their presence felt. Ensuring that respiratory risks are well managed in terms of engineering controls and the provision of appropriate respiratory protective devices is critical.

Respirable crystalline silica (RCS) is a recognised workplace hazard that presents serious respiratory health for workers, often resulting in a condition known as silicosis. A recent report has suggested that over 400 Australians are living with silicosis. Annually, around 600,000 Australian workers are at risk of inhaling silica dust at their workplace. Many common industrial activities regularly expose workers to RCS. Worksites such as manufacturing, construction and mining are working with materials and processes that produce fine dust which potentially contains RCS and other airborne hazards.

Respirable crystalline silica particles can be so small that they are not visible but can penetrate deep into the gas exchange region of the lungs and can cause silicosis. Silicosis results in permanent lung damage — it is a progressive disease that is debilitating and can lead to serious illness or death. Unfortunately, by the time the disease is diagnosed the damage is irreversible. The amount of crystalline silica in products can vary. Examples include brick (up to 30%), tile (30–45%), granite (20–45%), concrete/mortar (25–70%), sandstone (70–90%) and engineered stone (90%+).

Exposure standards

From 27 October 2020, the mandatory workplace exposure standard (WES) has been halved from an eight-hour time-weighted average (TWA) airborne concentration of 0.1 milligrams per cubic metre (mg/m^3) to $0.05 \text{ mg}/\text{m}^3$. And as of 27 October 2021, the WES for respirable coal dust is expected to be halved to $1.5 \text{ mg}/\text{m}^3$. WorkSafe Victoria has gone above the national standards and recommends that employees are not exposed to levels above $0.02 \text{ mg}/\text{m}^3$ as a TWA.

According to SafeWork NSW, silica is one of the top four health hazards affecting workers in the building and construction industry. The hierarchy of controls for managing risks such as silica exposure recommends elimination or substituting the risk, isolating the hazard, engineering controls and providing suitable personal protection equipment (PPE). Although PPE is the last step in the hierarchy of controls, it often plays an important role in protecting workers. Powered air-purifying respirators (PAPRs) provide an increased level of protection and are being increasingly recommended for use against hazards such as silica.

Powered respirators

PAPRs utilise a motor and fan system to provide filtered air to the breathing zone while maintaining positive pressure. They are not dependent on the facial seal of the respirator to maintain protection. This results in a significantly increased level of protection for the wearer in comparison to a negative pressure respirator such as a disposable mask. All respirators have an assigned protection factor (APF) in line with guidance from AS/NZS1715:2009. The APF for PAPR respirators ranges from 25 to 1000. There is a variety of PAPR models available, from lightweight neck-mounted products that offer improved mobility and comfort to belt-mounted models that connect to helmets or head tops via a hose.

*CleanSpace Technology Pty Ltd
www.cleanspacetechnology.com*

WELDER RESPIRATORY PPE CONTROL MEASURES AND RESPONSIBILITIES

Since welding fume was reclassified as “carcinogenic to humans” by the International Agency for Research on Cancer (IARC) in 2017, the severe health effects of welding fume exposure have been well documented and widely recognised. These effects range from lung function abnormalities to stomach ulcers, kidney damage and several types of cancer. Where do things currently stand, what control measures should be taken and who is responsible for ensuring workers are protected?

The 2017 IARC reclassification increased awareness of the dangers of welding fume and is an important step in the right direction for the industry at large; however, it means little without proper action being taken. Recognising the health risks associated with welding fume exposure should encourage all employers of welders to review their risk assessments and revise their control measures. As such, there is a critical need to give workplaces clear and practical advice that can help to keep workers protected. Following such guidance can make staying safe straightforward, no matter how serious the risk.

What control measures should be taken?

In relation to the hierarchy of controls, personal protective equipment (PPE) is often referred to as the last resort. However, this is not tenable when it comes to welding, where suitable PPE must always be worn. In fact, the established consensus is that a combination of local exhaust ventilation (LEV) and respiratory PPE is the most practical and effective ‘product control’ method against welding fume for all workers in welding environments.

On the one hand, properly located LEV can capture welding fume directly at its source, which can not only protect the welder, but

also all workers in close proximity to the welder. On the other hand, PPE for respiratory protection from welding fume is commonly available in two main forms: welding helmets with integrated respiratory protection and half mask respirators. According to the ‘2020 Welding fume and respiratory protection survey’ from AWS, welding helmets with integrated powered air purifying respirators (PAPR) are the most widely used form of respiratory protection among welders in Australia and New Zealand. These are also mandatory within many businesses.

They have a required minimum protection factor (RMPF) of 50, meaning they supply a minimum 50 times cleaner air than the welder would otherwise be breathing unprotected. Simultaneously, the helmet itself protects the welder’s eyes and face from radiation and high-velocity particles. Built-in hard hats (safety helmets) and earmuffs are also available with certain PAPR systems, and this amounts to five possible levels of integrated welding protection (eye, face, respiratory, head, hearing).

Conversely, a disposable or reusable half-mask respirator can be worn underneath a welding helmet to provide an RMPF of 10 (ie, 10 times cleaner air than you would otherwise breathe unprotected). To ensure this level of protection, the welder must be fit tested (an-

nually is recommended) and clean shaven to maintain an effective negative pressure seal. When compared to disposable and reusable half-face mask respiratory protection, then, PAPR systems provide superior respiratory protection (in the form of five times cleaner air) and enhanced comfort without the need for fit testing or a clean-shaven condition.

Who is responsible for ensuring workers are protected?

Put simply, the primary responsibility to ensure that workers are protected lies with their employer. This is reflected under both the Australian Work, Health and Safety Laws and the New Zealand Health and Safety at Work Regulations, which each list employers as financially responsible for providing PPE to workers. Moreover, when selecting PPE, the employer should consult with their workers, where reasonable. After all, given they are directly affected by the hazards, welders are entitled and well qualified to contribute to the decision-making process.

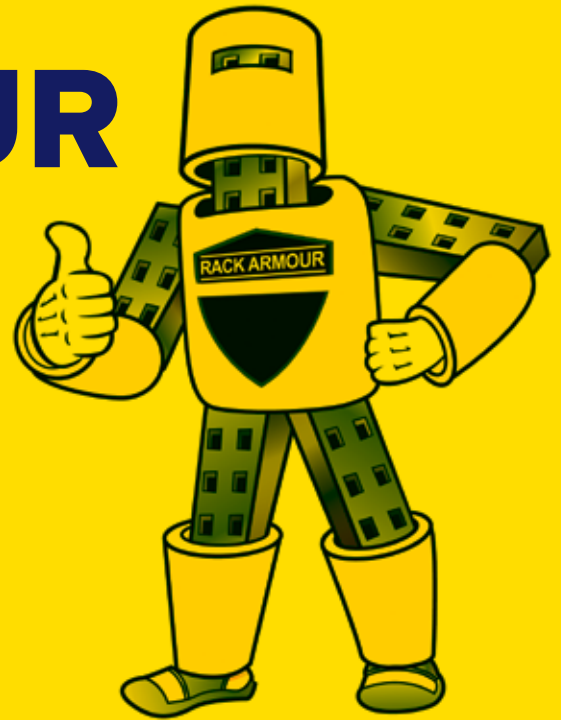
Thanks to court cases and research, the world has shifted to more of a health and safety focus. It’s now up to companies to update their approach to welding fume and welders’ protection.

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HOW TO ACHIEVE ISO ACCREDITATION SUCCESS — EVEN DURING COVID-19



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CCOVID-19 has had severe impacts on the Australian construction industry, but AJ Grant Group, a respected residential and commercial building company, was determined to push on with their certification effort regardless of the pandemic's pressures.

The safety experts at Recovery Partners helped to AJ Grant Group achieve the trifecta: triple certification for their Integrated Management System (IMS), including **ISO14001 Environmental Management**, **ISO45001 Safety Management Systems** and **ISO9001 Quality Management**.

Why AJ Grant Group wanted ISO Accreditation

"ISO Accreditation was the formalised stamp of approval we needed," says CEO Brad Honeyman.

"The ISO Accreditation achieves several things," he continues.

"It demonstrates the level of commitment from management and the whole business to keeping everyone safe. It allows us to lead by example, ensuring that our teams are safety conscious and actively prioritising safety, and it gives us a distinct competitive advantage when tendering for major contracts against other companies that are not certified."

Certification preparation

To achieve the certification, **Recovery Partners** guided the AJ Grant Group team through an extensive IMS development process over several months.

You can't buy a product off the shelf for an IMS. It has to be customised and it has to be excellent. While the IMS is being developed, it's also being implemented. Once the safety policies and processes are developed, the IMS needs to be trialled and introduced to key stakeholders. They give feedback and Recovery Partners continuously fine-tune it. At the same time, Recovery Partners gather evidence that the audit team requires.

Sustainable Accreditation

When everyone was satisfied with the IMS, it was time to contact the accrediting body, Sustainable Accreditation.

"Sustainable provided a Lead Auditor and **Recovery Partners** project-managed, coordinating with them and with our internal team," Brad explains.

While the auditing process would typically involve a lot of site visits to verify that subcontractors and AJ Grant Group team members were adhering to the safe processes and practices of the IMS, COVID-19 made this impossible.

So, Sustainable relied more on spot checks over the phone, where they would call and interview site supervisors or ask for certain documentation to be provided within the next half-hour.

"AJ Grant Group has a lot of tradespeople as subcontractors," **Recovery Partners** says.

"Therefore, an integral part of the audit was checking that this labour force meets the standard it needs to. To guarantee the quality of the workmanship and end product for the client, the subcontractors have to meet the criteria for performance and safety systems."

Benefits of accreditation

Benefits of ISO accreditation include:

- Enhance workplace safety
- Reduce costs and lower insurance premiums
- Increase revenue and Return On Investment (ROI)
- Enhance company image and provide competitive edge
- Improve productivity

Return On Investment

Brad says the AJ Grant Group team have already started to see ROI.

"It's been a great morale booster for staff. When we notified everyone, the feedback was fantastic. It was frustrating for everyone when we missed out on jobs or tenders due to our lack of certification, because we knew we could do those projects, and do them well. We've got the experience. Now, there's nothing holding us back. Our team are feeling positive and excited about the prospect of new business, and this helps them commit to our safety systems. This commitment then helps our business grow."

Brad continues, "We worked hard on this because we knew the benefit would be there. It's not surprising but it's gratifying now that we're already seeing doors opening. There are exciting times ahead for AJ Grant Group and the future looks bright. There are many companies that can assist in WHS, but Recovery Partners help you make it happen."

Recovery Partners operate at the forefront of safety service provision in Australia. We bring decades of combined experience and constantly evolving knowledge to our partnerships with Australian businesses. With consultants spread from coast to coast, we're well-placed to advise and assist you with your WHS/OHS needs, wherever you are. Visit www.rrp.com.au today to learn more.

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THE SAFETY, WELLBEING
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FIRE PROTECTION SYSTEMS

TRANSFORMING ANCIENT PRINCIPLES

Peter Geale, Marketing Manager, FireMate*

Do we have Emperor Nero to thank for modern-day fire protection? Core principles of contemporary fire protection standards can be traced to efforts in Ancient Rome, and through technological innovation, the fire protection systems we rely on today have been transformed.

The origins of the fire protection industry are frequently traced back to the Ancient Romans more than 2000 years ago. After a multi-day fire destroyed large parts of Rome in 64 AD, Emperor Nero ordered it to be rebuilt using new building and construction rules. This included using fire-retardant building materials and increased separation between buildings.

Fast forward to the early years of the 20th century, and fire engineering had emerged from the Industrial Revolution alongside civil, mechanical and chemical engineering as a separate discipline. In the last 50 years or so, the advent of electronics, computers and software and the development of the internet have combined to offer the modern-day fire protection industry a stack of building blocks to elevate the safety of people and property to new levels.

Did Nero get it right?

The design and construction of a new building or the renovation of existing buildings always includes extensive consideration of passive and active fire protection systems in alignment with regulations and best practices. Nero's team had it correct when they chose appropriate building materials and designs as they rebuilt Rome.



The passive fire protection systems used by the Romans are still used today, although today's design principles are far more sophisticated. Passive fire protection is intended to limit the spread of fire and smoke and includes the construction materials and the building designs to enable building evacuation.

On the other hand, active fire protection systems slow or stop fire and smoke and include fire detection, fire-alerting systems and fire-suppression systems, including sprinklers and extinguishers. Modern fire systems are linked to building fire panels, and the panels are connected to fire dispatch centres to ensure rapid deployment of fire brigade assets.

Standards for the design, installation and commissioning of active and passive fire protection systems provide the necessary guidelines to ensure buildings are safe for their intended use. Recent disasters like the Grenfell fire in London in 2017, which



STANDARDS FOR THE DESIGN, INSTALLATION AND COMMISSIONING OF ACTIVE AND PASSIVE FIRE PROTECTION SYSTEMS PROVIDE THE NECESSARY GUIDELINES TO ENSURE BUILDINGS ARE SAFE FOR THEIR INTENDED USE. RECENT DISASTERS LIKE THE GRENFELL FIRE IN LONDON IN 2017, WHICH SADLY SAW 72 PEOPLE PERISH, REINFORCE THE IMPERATIVE TO IMPROVE ACTIVE AND PASSIVE FIRE PROTECTION SYSTEMS.

sadly saw 72 people perish, reinforce the imperative to improve active and passive fire protection systems. Significant developments in the design and installation of passive and active fire protection systems are vital. A recent advancement is the use of Internet of Things (IoT) sensor technologies that can monitor room temperature with greater precision and potentially detect the presence of fire faster than traditional detectors.

Fire protection system maintenance 'is not an option'

Equally as essential as designing and installing fire protection systems is the ongoing maintenance or servicing of these systems. It's far better for a fire protection maintenance professional to detect an issue with a fire protection asset instead of a fire brigade turning up at the front door with lights flashing and sirens blaring.

Fire protection standards like the Australian Standard 1851 are a set of rules and regulations that building owners are expected to meet regarding fire protection maintenance. Additionally, each Australian jurisdiction has regulations that draw from AS 1851 and often provide further requirements on servicing frequency, reporting, training and technician certification requirements.

A frequently lamented difference between the states and territories is annual building inspection reports. In New South Wales, it's the 'Annual Fire Safety Statement'; in Queensland, it's the 'Occupier Statement', and so on.

Digital transformation of a 2000-year-old industry

As mentioned, the fire protection maintenance industry ensures that installed fire protection systems are maintained as per standards and regulations. The importance of the industry is underscored by recent COVID-19 lockdown work exemptions being similarly granted for fire protection maintenance professionals to emergency services and health personnel. The industry relies on accredited professionals inspecting fire assets to ensure the systems are ready to detect, alarm and combat a fire should one occur.

Like most digital transformations, the modernisation of the fire protection maintenance industry has seen digital technology embedded into most areas of the operation. It has challenged the status quo and has enhanced the value offered to property owners and occupants alike. Similarly, technology has delivered operational efficiencies and ultimately increased productivity for fire protection maintenance businesses.

Enhancing value for building owners and tenants



Building owners and tenants are the customers of fire protection maintenance businesses. Digital transformation offers them several important benefits:

- Anytime, anywhere visibility of fire assets, alarms and alerts via monitoring systems across an entire building portfolio.
- Confidence that fire protection systems are compliant via online self-service reporting. Previously, reports were sent by mail or email. On-demand and exception reporting provides easy access to reports.
- Increased availability of fire protection systems due to reduced time to repair defects.



©FireMate Software Pty Ltd



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Enhancing fire protection maintenance business efficiencies and profitability

Digital transformation has revolutionised fire protection maintenance providers in recent years as they moved from mostly paper-based systems to software systems for office and field teams. In essence, fire asset management systems enable businesses to re-engineer workflows to be simpler, more accurate and compliant.



Fire protection maintenance businesses consistently see these important benefits:

- Increased business efficiency with business insights reporting.
- Optimised defect management with instant access to asset history and quotes.
- Increased technician productivity with optimised scheduling.
- Fewer mistakes and fewer searches with immediate access to standards.
- Less administration by offering customers direct access to their building reports.
- Simpler operations with compliance reporting at the press of a button.

And for the next 2000 years...

Despite Nero being of dubious character, the rebuilding of Rome under his rule to be fire resistant demonstrated advanced thinking. In the ensuing 2000 years or so, fire protection systems design has continued to evolve as technology has developed. As more fire assets are connected, the level of fire protection available will be increasingly robust.

Likewise, the digital transformation of fire protection maintenance and servicing will enable maintenance providers to improve service levels to building owners while also increasing their efficiencies. The safety of people and places must continue to be the focus of future developments and should underpin all development efforts.

**Peter Geale is a digital transformation enthusiast with experience across several industries, including fire protection, student wellbeing, international marketing, telecommunications and software as a service.*

FireMate
www.firemate.com



Gas detector

Outfitted with rapid-response MSA XCell sensors, the ALTAIR 4XR Gas Detector is a tough 4-gas detector. The gas detector provides real-time incident awareness to team members, supervisors, safety managers and others, when paired

with the MSA ALTAIR Connect app via a Bluetooth wireless connection. Real-time, rugged and reliable, the gas detector is designed to sense gas two times faster than the industry average with its XCell sensors. The gas detector's settings can also be updated quickly, via the ALTAIR Connect app (available on the Google Play Store). The app also enables users to send event notifications via text message.

The ALTAIR 4XR can survive 25 drops from 4' (1.2 m) and is MIL-STD-810G 516.6 Transit Drop 3rd Party Certified. The gas detector can also survive an incidental 25' (7.5 m) drop onto concrete and is dust and waterproof with an IP68 rating (2 m for at least 1 h), with an operating range of -40 to +140°F (-40 to +60°C).

Users can confirm compliance quickly with the Bump LED and on-screen checkmark, and bump and calibrate at a specified 'Time of Day' with the MSA GALAXY GX2 Automated Test System. The gas detector's MotionAlert option tells others that the user has become immobile, while the user-activated InstantAlert notifies others of a potentially dangerous situation. The ALTAIR 4XR Gas Detector comes with a four-year instrument and sensor warranty.

MSA Australia Pty Ltd
au.msasafety.com

Flammable chemicals storage cabinet

The HEMCO Flammable Storage Cabinet is designed for the storage of flammable chemicals and is available in 30", 36" and 48" widths. The standard size is 35" high and 22" deep.

The cabinet is insulated with high-temperature fibreglass insulation and is UL 1275 listed. The front access doors are lined and the edges are sealed. The cabinet is also available with a locking mechanism to keep chemicals secure. The shelf is removable for large container storage.

HEMCO Corporation
www.hemcocorp.com



Perimeter safety net system

Dropsafe has launched a perimeter safety net system to protect personnel and assets in offshore industries. The system attaches to the perimeter frames of helidecks to protect personnel from falling and prevent loose objects from becoming dynamic drops hazards.

As contractors and operators in the global offshore sector look to make their site safety programs as robust as possible, airborne personnel transfers have come under increased scrutiny. Perimeter safety nets are mandatory on all helidecks, with demand for a high-quality solution in the offshore sector rising, after growing awareness of the specific operational risks presented by helicopter landings. Drops can occur from foreign object debris blown or equipment being loosened by powerful helicopter downdraft. The system developed by Dropsafe has been designed to offer a high-quality solution to the challenges posed by drops in offshore helidecks. Drawing on extensive R&D and expertise tackling offshore drops, it consists of 100% Japanese made 316 stainless steel wire and components.

Helidecks serve as a lifeline for offshore rigs and vessels, so it is important for operators to ensure that perimeter safety nets can be installed and maintained whilst keeping costly operational downtime to a minimum. In this context, traditional solutions constructed from coated metal, yarn and synthetic textiles may prove expensive in the long-term, as they are often resource-intensive to install and not suitably resistance to environmental factors. The marine-grade stainless steel Dropsafe perimeter safety net is designed for harsh offshore environments and can be fitted quickly and easily, requiring minimal maintenance.

The perimeter safety nets are a made-to-measure system for the sector, packed and labelled for each specific area, making it quick and easy to install with minimal tools. The system is also modular, to facilitate easy replacement of components. The Dropsafe Helideck Perimeter Safety Net is manufactured to high standards, to comply with regulations such as CAP 437 and OGUUK.

Dropsafe
www.dropsafe.com

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COVERALL SELECTION

HANDLING HARMFUL SUBSTANCES

Drew Dauncey, Technical Safety Specialist, Blackwoods



Chemicals do not differentiate. From the tops of our heads to the soles of our feet, every single millimetre of us can be damaged beyond repair if we are not properly protected against harmful chemicals and substances. It can be difficult to determine which chemical coveralls are right for your workplace, that's why protective standards are in place.

In the past few years, there have been several high-profile accidents across Australia that have drawn attention to the issue of protection against harmful chemicals and substances.

People have been seriously injured, and there have been fatalities. Tragically, as some accidents have shown, workers have been injured because they didn't have access to suitable personal protective equipment (PPE), and/or weren't properly guided on correct procedures concerning the handling of harmful substances, including during spills and in clean-up operations.

Protection from harmful chemicals and substances requires a complete head-to-toe solution. This includes the use of PPE that meets relative standards, is appropriate for all individual hazards in the workplace and fits correctly. PPE includes face masks, eye-wear, footwear and coveralls. There are many different types of

coveralls, and it can be difficult to determine which type is right for the type of work and workplace. However, there are protective standards in place.

There are various types of coveralls to protect workers from a broad range of chemicals. Most workers will never need to look further than a type 5/6 coverall, to protect them from dry chemical powder and liquid droplets. The best way to ensure the correct coverall is selected is to compare the chemicals being used against a coverall permeation guide. No two workplaces are the same, so it's best to engage with a technical safety specialist to ensure that the appropriate protective coverall is identified. A specialist can do the analysis of the chemicals being used with the coverall permeation data to select the correct coverall.

Protective coveralls undergo rigorous testing to ensure that they provide the correct level of protection. Different chemicals will 'break through' the coverall at different times, so it's important to understand the permeation data and how they interact with specific environmental conditions. It's the very reason why many overalls are disposable and should be replenished frequently. While there's a lot of permeation data available, at the base level employers should familiarise themselves with the EN standards and types for guidance.

When selecting chemical coveralls for your workplace, ensure they have the EN standards marked on the garment. For example, a type 5/6 should display the pictograms for particles and liquid droplets along with EN 13034 and EN 13982. Some, but not all coveralls, will have antistatic properties, so it's imperative that you check for the 'lightning bolt' pictogram, if you work in a hazardous electrical environment. By identifying these key features, you will ensure that workers and workplaces are kept safe from injury and even death.

Blackwoods
www.blackwoods.com.au

TYPE & PICTOGRAM	DEFINITION & EXPOSURE LEVEL	PRODUCT STANDARD & YEAR OF PUBLICATION
 TYPE 5/6	Resist direct high pressure jet spray	EN 14605:2005/A1:2009
 TYPE 4/6	Resists saturating liquid	EN 14605:2005/A1:2009
 TYPE 5	Protection from airborne solid particulates	EN ISO 13982-1:2004/A1:2010
 TYPE 6	Repellent to liquid spray/splash	EN 13034:2005/A1:2009
 EN 13036	Protection from blood and blood borne pathogens	EN 14126:2003
 EN 1818-5	Anti-static properties	EN 1149-5:2018
 EN 1073	Protection from radioactive particulates (Gives no protection against radioactive radiation)	EN 1073-2:2002

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A photograph of three white semi-trailers parked in a row on a dirt road or field. The trailers are white with dark trim around the doors and windows. The background is a clear blue sky and a field of dry, yellowish grass. The text is overlaid on the bottom half of the image.

ROAD-FRIENDLY AIR SUSPENSION PREVENTIVE MAINTENANCE CHECKLIST

Russell Chown, Manager for Automotive Air Springs, Air Springs Supply



The airbag revolution rolls on with this nine-point preventive maintenance checklist for heavy vehicles — designed to keep road-friendly air suspension working safer for longer across Australia's road transport network.

As the Australian heavy vehicle fleet nudges half a million trucks for the first time on record, a huge emphasis is being placed on their safety as road users and as a vital link in the nation's response to COVID-19 supply issues. Our heavy vehicle fleet now stands at about 365,000 rigid trucks over 4.5 tons, according to the 2021 ABS Motor Vehicle census, with another 109,927 articulated heavy vehicles (also a record number) doing the heavy haulage over Australia's diverse and demanding network of more than 870,000 km of public roads. These vital vehicles, with an average age of about 15 years, share the roads with about 20 million cars and other vehicles of different types. Most of the heavy trucks — certainly most of those over 12 tons — rely on road-friendly air suspension systems that increase the ability of trucks, trailers and coaches to transport loads by levelling the suspension, enhancing stability, control and safety.

Use of these tough but comfortable systems — which also reduce noise and vibration — has grown exponentially over a generation in Australia, to the point where they have gone from being a comparative rarity to becoming an industry standard as drivers and fleet owners seek top performance on both sealed and tough unsealed roads (the latter of which still comprise more than half the total of the roads in this sprawling country). Air suspension systems now abound in the federal government's lists of Certified Road-Friendly Suspensions prepared by the Department of Infrastructure, Transport, Regional Development and Communications. Suspensions on the list encompass the major original equipment manufacturers (OEM) and specialist brands of worldwide manufacturers, including in Australia.

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PREVENTIVE MAINTENANCE CHECKLIST

- ☒ 1. Inspect the outside diameter (OD) of the air spring. Check for signs of irregular wear or heat cracking.
- ☒ 2. Inspect air lines to make sure contact doesn't exist between the air line and the OD of the air spring. Air lines can rub a hole in an air spring very quickly.
- ☒ 3. Check to see that there is sufficient clearance around the complete circumference of the air spring while at its maximum diameter.
- ☒ 4. Inspect the OD of the piston for build-up of foreign materials. (On a reversible sleeve style air spring, the piston is the bottom component of the air spring.)
- ☒ 5. Correct ride height should be maintained. All vehicles with air springs have a specified ride height established by the OEM. This height, which is found in your service manual, should be maintained within 1/4" (6.3 mm). This dimension can be checked with the vehicle loaded or empty.
- ☒ 6. Levelling valves (or height control valves) play a large part in ensuring that the total air spring system works as required. Clean, inspect and replace, if necessary.
- ☒ 7. Make sure you have the proper shock absorbers and check for leaking hydraulic oil and worn or broken end connectors. If a broken shock is found, replace it immediately. The shock absorber will normally limit the rebound of an air spring and keep it from overextending.
- ☒ 8. Check the tightness of all mounting hardware (nuts and bolts). If loose, re-torque to the manufacturer's specifications. Do not over-tighten.
- ☒ 9. Use the right cleaning media because use of incorrect media can cause damage and void warranties. In the case of Firestone, for example, approved cleaning media are soap and water, methyl alcohol, ethyl alcohol and isopropyl alcohol. Non-approved cleaning media include all organic solvents, open flames, abrasives and direct pressurised steam cleaning.

Users who find a fault exists using the checklist should take corrective action to ensure that it is fixed properly — it will save you both time and money and ensure ongoing safety.



Circumferential cuts, above, can be caused by being fully extended for long periods or impact in the compressed position. Loose girdle hoops, below, can be caused by running at extended positions with low air pressure.



Concave bead plate, above, or over-extended air spring, below, can be caused by factors such as broken or defective shock absorbers, defective levelling valve, overloaded vehicle, pressure regulator set to low or use of an incorrect air spring that is too tall. Damage from over-extension can also be caused by defective upper stops or an air spring that is too short.





USE OF THESE TOUGH BUT COMFORTABLE SYSTEMS — WHICH ALSO REDUCE NOISE AND VIBRATION — HAS GROWN EXPONENTIALLY OVER A GENERATION IN AUSTRALIA, TO THE POINT WHERE THEY HAVE GONE FROM BEING A COMPARATIVE RARITY TO BECOMING AN INDUSTRY STANDARD AS DRIVERS AND FLEET OWNERS SEEK TOP PERFORMANCE ON BOTH SEALED AND TOUGH UNSEALED ROADS (THE LATTER OF WHICH STILL COMPRISE MORE THAN HALF THE TOTAL OF THE ROADS IN THIS SPRAWLING COUNTRY).

Use of air suspension is a far cry from even 30 years ago, when they were more of a rarity than the norm, which comprised massive, bone-jarring, steel springs. They were certainly tough, these steel springs, but they were hard too on roads, cargoes and drivers. Air suspension was a quiet revolution (literally) that brought massive relief to a whole generation of drivers who appreciated the benefits of the technology through the seat of their pants, because air suspensions were far smoother compared with the harsher, clumsy systems that were commonplace on heavy vehicles at that time. After all, air suspensions are the ride of choice for many of the top models of the world's prestige makers of limousines, so our truckies are in good company as they suffer less fatigue through road shock.

And the industry (and the regulators) quickly woke up to the fact that these

suspensions could be kinder to the roads, as well as to them — while delivering heavyweight reliability where they are properly maintained. Good basic maintenance is the key for these almighty tough air springs to last for hundreds of thousands of kilometres — in well-maintained cases, out past 600,000 km, in our experience. Today, demand for air springs utilised in air suspensions for all types of heavy vehicles (including a vigorously growing market for 4WDs and recreational vehicles) has grown in line with a world market that is now estimated by market researchers to exceed AU\$6 billion. These markets are major users of the ubiquitous Airride, Airstroke and Airmount Firestone air springs and ContiTech air springs for coaches, prime movers and trailers.

The tremendous distance travelled and safety achieved by quality OEM and replace-

ment air springs such as Firestone and ContiTech can be extended further with a preventive maintenance checklist (below) that takes just a matter of minutes and will save both downtime and money across major users of heavy vehicles, ranging from transport and logistics fleets through to mining, construction and individual users of articulated, rigid and on-road and off-road vehicles using air suspensions. The following simple checks will pay dividends (noting that users should never attempt to actually service the air suspension on a truck or trailer with the air springs inflated).

Now more than ever it is important for safety and cost-efficiency to maintain the suspension of Australia's hard-worked heavy vehicle fleet, the average age of which is twice the average of leading European nations and three times the average of China and California, according to trucking industry figures. So not only are Australian heavy vehicles working longer, particularly during the COVID-19 pandemic, they typically cover greater distances to keep up with constantly changing supply chains to deliver a greater range of urgently needed goods to far-flung urban and rural centres. Clearly safety and reliability are paramount for this vital job. As always, a little preventive maintenance will save a lot of trouble for truckies and fleets.

*Air Springs Supply Pty Ltd
www.airsprings.com.au*



Russell Chown of Air Springs Supply Pty Ltd, national distributor of Firestone Industrial Products.

Cling film pallet wrapper

The Pack King Rapid Wrapper helps people working in warehouses avoid the strain of pulling stretch film, when trying to protect a pallet load of goods with protective film. Users can place the load into the 280 mm-high turntable, press the foot pedal to start rotation, then stand in one spot while holding the stretch film dispenser, tensioning the film using the hand brake.

The Rapid Wrapper can be moved with a hand pallet truck. It can also be loaded using either a straddle walkie stacker or forklift. When not required, it can be stowed safely on pallet racking, due to the notches in the base frame.

The low-voltage foot control unplugs, as does the extension cord, so there are no trailing wires to worry about. To use the Rapid Wrapper, plug it into any 240 V outlet and the 1220 mm-diameter chequer plate powered turntable is ready to go.

Pack King

www.packking.com.au



Antimicrobial coating technology

Developed by Australian materials technology company Xefco in response to the COVID-19 pandemic, Metallix is a patent-pending technology that applies a trace amount of 99.95% pure copper as an ultra-

thin surface coating on the fibres of textiles. Metallix technology harnesses the unique antimicrobial properties of copper, utilising a high-tech vapour deposition process to create breathable materials that destroy harmful enveloped viruses (such as SARS-COV-2) and bacteria.

Metallix uses Xefco's coating technology to produce ultra-thin copper surfaces on textiles that does not change the hand feel, breathability or weight of the fabric. The ultra-thin copper surface coating provides rapid antiviral and antibacterial activity, inhibiting the persistence of pathogens on treated textiles.

Studies conducted by the Peter Doherty Institute for Infection and Immunity have shown materials treated with Metallix technology can inactivate SARS-COV-2, the virus that has caused the COVID-19 pandemic, by 97.79% within five minutes and 99.95% within 15 minutes, with no infectious virus detectable on the textiles after 30 minutes. Metallix can be applied to a range of textiles and substrates. The coating process allows the treatment of hydrophobic spunbonded and melt blown materials used in PPE face masks and air filters which cannot be treated via conventional textile finishing methods.

Xefco Pty Ltd

www.xefco.com

Manual handling risk assessment software

Soter Analytics has developed an AI-driven visual processing product that acts as an 'impartial observer' when performing task risk assessments. The technology, called SoterTask, provides a 'second unbiased eye' and labour-saving features that decrease the workload of safety professionals and increase the safety of their workers. SoterTask is designed to streamline and speed up ergonomic assessments, providing easy-to-read reports with objective data to assist observational techniques and increase the safety of workers.

Performing risk assessments on individual tasks in the workplace is part of the hazard identification process, to keep workers safe. Typically, assessments are carried out by safety professionals and can be subjective, with long ergo reporting requirements. Soter Analytics has found a solution to this; using AI vision processing software, the solution helps professionals carry out these evaluations.

SoterTask is simple to use. Needing only a smart device, the application can be applied on the go and requires no special tools or sensors. The video software provides a visual overlay highlighting high-risk angles and movements of a worker's body including legs, arms, neck and back on a second-by-second chart. The impartial eye assists with any perceptual or inattentional blindness and confirmation bias, both of which involve factors that influence standard observational techniques.

The visually pleasing interface and accompanying dashboard provide detailed analysis of risks and integrate all industry ergo tools, displaying side-by-side risk comparisons for pre- and post-intervention implementations. The labour-saving tool also presents reports with key improvement metrics for distribution and follow-up.

Soter Analytics

www.soteranalytics.com



RETURN TO WORK

SUPPORT YOUR PEOPLE WITH A ROBUST SYSTEM

Matt Browne, Co-Founder, Donesafe

With more Australians returning to work as we reach milestone vaccination rates, the onus is on employers to prioritise workplace safety when it comes to the risk of the pandemic. Integrating technology and automation into your safety management procedures can not only streamline essential compliance requirements, but also helps your employees feel more confident and supported as they return to work.

The global pandemic threw us many curveballs, with different industries being affected in vastly different ways. This is still the case as we return to work in Sydney and Melbourne, with constant shifts in government regulations and restrictions making compliance requirements difficult to manage. But there are ways to make it easier, and ensure your business remains compliant, mitigate risk and support the health and wellbeing of your employees. With all the uncertainty that surrounded the lockdown periods, it's important to help your workers feel safe and confident about coming back. With reliable, robust and effective safety management procedures in place, you can limit productivity drain and also increase the wellbeing of your teams.

The pandemic caused every business to review and adapt safety management procedures, but with return-to-work regulations around the virus varying across industries and states it can feel complex. For example, vaccination mandates imposed on health care in New South Wales mean workers have until 30 November to be fully vaccinated to continue working. It is an employer's responsibility to take reasonable steps to ensure workers comply with these orders, and this all has to be recorded for compliance. Employers also face privacy obligations when collecting vaccination details, making it more challenging to monitor vaccination status. With this information falling under the Australian Privacy Act, employers need to ensure that only personal information which is reasonably necessary to prevent or manage the virus in the workplace is collected, used or disclosed.

This is just one scenario where a centralised environmental health and safety (EHS) software system can make a real difference. I am a big believer in technology and its ability to streamline

operations, especially when it comes to workplace health, safety and compliance. Advanced systems have the appropriate privacy measures in place, so the data you need is collected and you have appropriate visibility over the vaccination status of your workforce. Once an employee's vaccination status is recorded and compliance requirements are met, identifying data (like vaccination certificates) are removed from the system. This gives people assurance their details are secure.

An easy-to-use app allows employees to enter their own details, with automated reminders and prompts saving time and taking the pressure off administration staff to physically collect and record data. By centralising this information, you're taking the necessary steps to remain compliant, while giving your employees the support they need when they're feeling extra pressure amid constant change. The capabilities of an EHS software extend well beyond vaccination status records of course. And they can be customised to suit your specific industry and business needs, as those requirements change.

Whether or not industry vaccination mandates are in place, employers still have a responsibility to follow virus-safe work procedures to give their teams confidence they are safe at work — and protect their wellbeing, both physically and mentally. It's important to reduce the risk of employees being exposed to the virus, and also reduce anxiety about returning to work. The right policies, procedures and systems can streamline this part of your operations, make sure you are compliant with a simple audit trail, give you visibility and control, and provide your people with peace of mind. Because they know you care about their health and safety.

Donesafe
vaxsafe.donesafe.com



COMMUNICATION IS CRUCIAL IN CRITICAL EVENT MANAGEMENT

Every organisation faces risks that can impact its people and assets. If a risk becomes a critical event, organisations must ensure they have processes in place to minimise the fallout and to quickly remediate and recover.

Critical Event Management (CEM) is detecting an event, acting on it to reduce negative outcomes and, importantly, learning from what happened so you can improve your response for future events. This requires a holistic approach that involves all stakeholders, ensuring they receive the right information at the right time.

If we consider a bushfire, as soon as the fire is reported, firefighting teams need to be mobilised and people who are at risk need to be notified. If the fire occurs in a national park, this might mean informing residents in adjacent properties and visitors to the park. When the communications are executed, the response can save lives, wildlife, livestock, and livelihoods.

In the aftermath of the 9-11 attacks in the United States of America, the founders of Everbridge recognised there was a clear need for an integrated CEM platform that went further than messaging. The company has, over the last two decades, built a comprehensive platform that enables governments, their agencies, and emergency services organisations, as well as private businesses, to streamline their response to critical events by supporting the rapid deployment of emergency teams as well as swiftly notifying members of the public if they are at risk.

Everbridge works with governments, emergency management and public and private organisations in more than 200 countries with its comprehensive CEM platform reaching over two billion

people. In September 2021, the Australian Government announced that it would be using Everbridge in its response capability, as part of its EAP4 system in anticipation of the bushfire and cyclone seasons.

But it's not just governments that can benefit from a CEM platform. Businesses face critical events that impact employees, contractors, visitors and customers. Physical assets including buildings, data centers or IT systems can also be at risk. And business operations, digital applications, supply chain routes and operations need to be considered as well as reputation and share price.

Many organisations will have playbooks written into business continuity plans for how to handle critical incidents. But, in the heat of the moment, it's possible that steps will be missed or errors are made. A CEM platform can not only outline those processes but automate many aspects, minimising the risk of an error that makes things worse.

The Wildlife Information Rescue and Education Service (WIRES) in New South Wales rescues sick, injured, or orphaned native animals. The organisation's team of around 2500 volunteers helps over 100,000 animals each year with calls peaking at about 20 per hour during the Spring and Summer seasons.

Before implementing Everbridge's CEM platform, each call required the manual matching of an available volunteer with



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the right skills, training and experience to the specific rescue situation. With everything from venomous snakes to flying-foxes as well as familiar animals such as wombats, echidnas and kangaroos, they needed to find a volunteer that was close enough and qualified to help the distressed animal.

This was done by filtering a spreadsheet and then manually contacting volunteers until they found a rescuer. Response times varied considerably due to the volume of rescue calls, the location and the availability of volunteers.

Today, WIRES manages all the information centrally with the Everbridge CEM platform. WIRES can allocate volunteers to rescue situations in minutes. When a call comes in, the specific needs are entered into the CEM platform and it automatically finds the most suitable rescuers and sends them a message in a matter of seconds.

Whether the platform is used by a government agency, emergency services or private organisation, Everbridge can send those communications as a text message or a recorded voice message to a phone number. Those messages can be prepared ahead of time using templates, which accelerate the messaging process, or custom messages can be sent for specific situations.

Organisations facing a critical event, such as a cybersecurity incident, systems outage or a physical threat to people and

property have similar requirements. They need to be able to identify, act and communicate promptly. And with so many staff working remotely due to the pandemic, having a location-aware system is important.

A CEM system needs to understand where people are so that during an incident, anyone who may be impacted can be informed and given advice on how to act. Everbridge works with the major global mobile carriers and can send messages to everyone potentially impacted during a critical incident. When a message is sent, it can be directed to everyone within the event's impact zone. This ensures that only the relevant people are sent critical alerts, alleviating the risk of 'notification fatigue' that results in important messages being ignored.

Every organisation and government agency has risks that can impact the availability, performance and safety of important assets. Everbridge's comprehensive CEM platform is essential to ensure public, employee and consumer safety and to help streamline communications and management in any critical event.



Everbridge Australia
www.everbridge.com

Software upgrades fire protection with standards integration



Brisbane-based fire protection maintenance software provider FireMate has partnered with Standards Australia to deliver an integration between FireMate's software and the Australian Standards. Before, the integration, maintenance teams had to search through hundreds of pages of information on devices, or study printed copies of the Australian Standards to locate appropriate information. With the integration, the same teams are immediately provided in-context information, like required water flow rates for a fire hose reel as they inspect it, saving time and reducing the chance of errors. The integration helps users save time when inspecting and maintaining fire protection equipment and ensures the correct application of the relevant and current standards. Prompts from within the FireMate Mobile App help fire protection maintenance teams inspect life-saving equipment in buildings and facilities.

Rob Thomas, Managing Director of FireMate, said the FireMate and Standards Australia software integration will enhance the productivity of fire protection businesses and improve compliance with the Australian Standards. Thomas is a former fire protection contractor and was the CEO of one of Australia's largest fire protection maintenance providers before founding FireMate. "We have been working with Standards Australia on this integration and licensing project for over a year. Ensuring that accurate information is always available in a simple and easy-to-use manner is critical for our customers and their customers. FireMate is including this additional functionality and full access to the relevant standards within the FireMate subscription for field and office users," Thomas said.

Adrian O'Connell, CEO of Standards Australia, added that standards, already part of safety, modernisation and risk management, should be used in innovative and cutting-edge digital solutions. "To achieve this, Standards Australia is executing a strategy where innovation becomes pivotal to the organisation's operating model," O'Connell said. Assistant Minister for Industry Development, Senator the Hon Jonathan Duniham, said this is a fantastic opportunity for Australia. "It is great to see Australian intellect leading the world forward in fire safety," Duniham said. The integration of the standards has been rolled out to FireMate customers, with Thomas noting that this is just the beginning of FireMate's partnership with Standards Australia. "Even deeper integration between the Australian Standards and our software platforms is already under development that will further enhance the productivity of fire protection maintenance providers," Thomas said.

FireMate
www.firemate.com



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