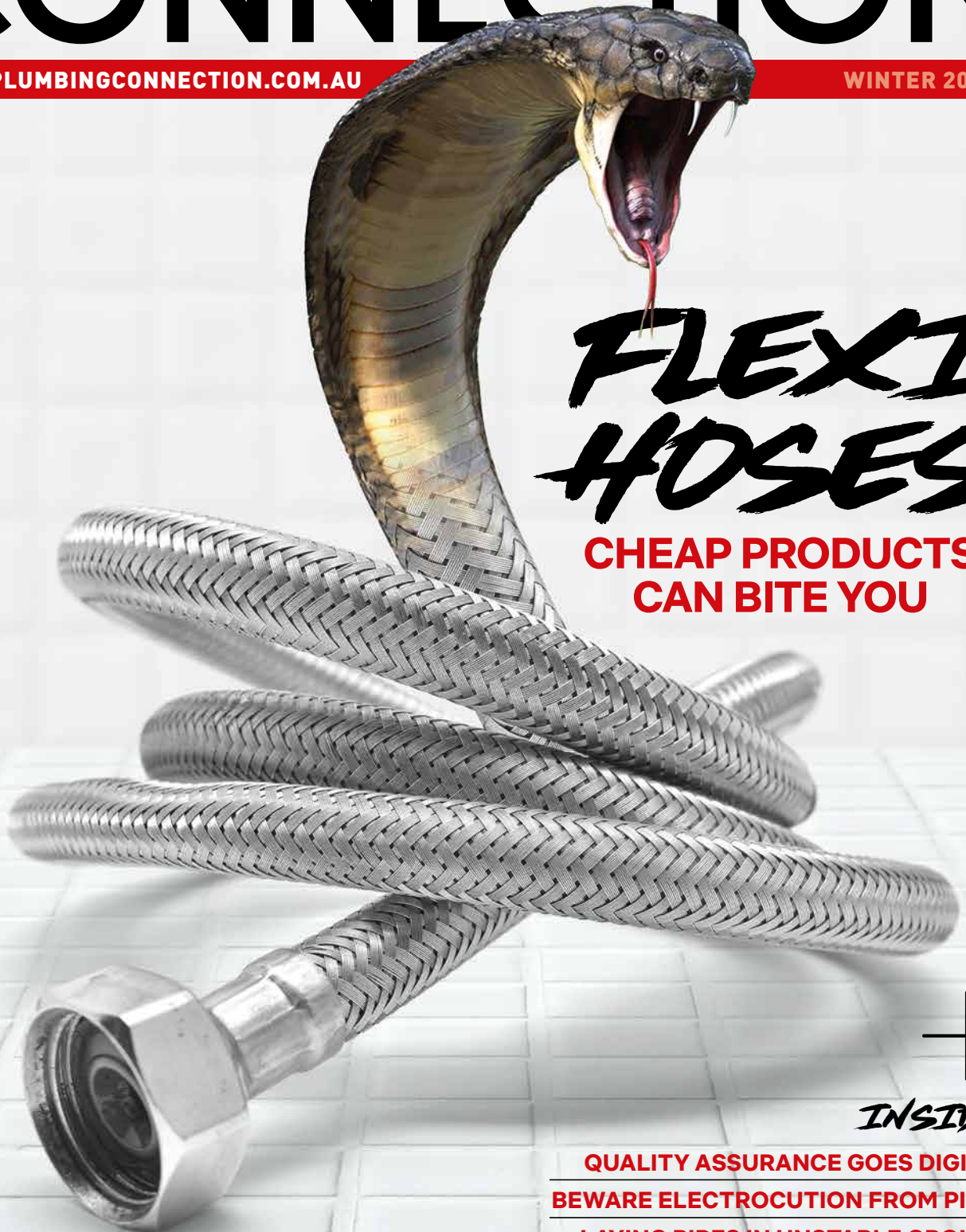


PLUMBING CONNECTION

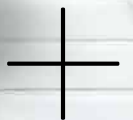
WWW.PLUMBINGCONNECTION.COM.AU

WINTER 2022



FLEXI HOSES

**CHEAP PRODUCTS
CAN BITE YOU**



INSIDE

**QUALITY ASSURANCE GOES DIGITAL
BEWARE ELECTROCUTION FROM PIPES
LAYING PIPES IN UNSTABLE GROUND**



**CHOOSE KEMBLA AND SHOW
YOUR SUPPORT FOR AUSTRALIAN
MANUFACTURED COPPER TUBE.**

AUSTRALIA'S ONLY COPPER TUBE MANUFACTURER. ESTABLISHED IN 1916.
To find out more go to: www.kembla.com.au

Phone: **1800 804 631** Email: sales@kembla.com.au



IN AUSTRALIA. WE DO PROPER COPPER.

CHOOSE KEMBLA COPPER TUBE.

1. KEMBLA IS A FOUNDING PIECE OF AUSTRALIA'S PROUD HISTORY

Established in 1916 for one reason. To ensure Australia could convert its rich copper resources to finished product – with no reliance on offshore supply.

2. KEMBLA IS AUSTRALIA'S ONLY COPPER TUBE MANUFACTURER

Ask for the Kembla brand and you are supporting Australian manufacturing and the many industries big and small that service it. Kembla also supports industry associations that support, educate and train you.

3. KEMBLA COPPER IS SOURCED FROM AUSTRALIAN MINES

87% of copper tube sold by Kembla is still made in Port Kembla, NSW Australia using LME A Grade copper cathode from Australian mines.

4. KEMBLA HAS OVER 100 YEARS OF INDUSTRY KNOWLEDGE

Generational knowledge and long serving employees – over 100 years of material knowledge and a love affair with Australia's renowned plumbing industry, practices and Australian plumbers.

5. PARTNERS TO AUSTRALIA'S FAVOURITE PLUMBING & HVAC-R MERCHANTS

Stocked and supplied by Australia's most respected Plumbing and HVAC-R distributors, renowned for the highest quality products.



WE DO
**Proper
Copper.**



**Dedicated
to the trade.**

plumbingplus.com.au

Because service is more important than ever before.

Here to help you get the job done.

Plumbing Plus has a long history of superior service and helping customers get the job done. Now, in our post pandemic 'covid-normal' reality, good old fashioned customer service is more important than ever.

As Australia powers forward, here at Plumbing Plus we're committed to our customers more than ever.

'Above-and-beyond' customer service has always been in our blood. It's a key pillar to our reason for being. The pandemic has only reaffirmed and strengthened our duty to our trade customers.

We'll always prioritise coming together and finding the best solution.

Turning our customers into mates isn't just a nice tagline, it's what we aspire to do every day.



Expert advice is part of our DNA.

Plumbing Plus was established to service the trade community. We do that with our \$2 billion buying power – giving you the best brands at competitive prices. What's more important, however, is the expert advice that comes along with it.

Plumbing Plus is a network of knowledge and expertise as much as it is a network of members. It's a group of independents that are united in their unwavering dedication to the trade community.

2022 is set to be a year of growth for the trade industry and trade businesses need partners they can rely on. Plumbing Plus members are here to help you get the job done.



Now that's a Plus

If you want to experience *The Better Way to Trade™* you can find your local Plumbing Plus member at plumbingplus.com.au

plumbingplus.com.au



COVER STORY

14 FLEXI HOSES: CHEAP PRODUCTS CAN BITE YOU

Flexi Hoses represent one of the major product classes in plumbing – but inadequate quality control continues to torment installers, property owners and insurance companies. We present an overview of this product category, and invite all industry practitioners to think twice before purchasing cheap, potentially non-compliant product.



FEATURES

20 QUALITY ASSURANCE GOES DIGITAL

Many large construction outfits are mandating the use of digital Quality Assurance platforms by all contractors and subcontractors.

24 LAYING PIPES IN UNSTABLE GROUND

The new Appendix G to AS 3500-2 provides some long-overdue guidance to laying pipes in unstable or moving soils.

28 CONTACTLESS PAYMENT

Electronic payment systems, including contactless SMS-based transactions, are becoming popular.

36 BEWARE ELECTROCUTION FROM PIPES

Electric shock from underground plumbing pipework is rare – but it can be fatal.

46 HEAT PUMPS WORK IN WINTER TOO!

Rheem explains how new heat pump technology can provide year-round efficiency throughout Australia.



FEATURES

- 08 Editorial
- 10 Industry News
- 12 New Products
- 30 KBL
- 32 Legal Matters
- 40 Backflow Prevention
- 44 Prove It
- 48 Box Gutters
- 52 ABCB
- 54 Gas Update
- 56 Training off the Page
- 60 Standards Australia
- 62 Copper Connection
- 83 Trade Stuff



68 HEALTH



72 MANAGEMENT



78 TRANSPORT

Aquablend[®] Health TMV

Scan for
more info on
Smart Flow[®]



**CONNECTS TO
SMART FLOW[®]**



**SANITISES WITH
THERMAL FLUSH**



**MINIMISES DEADLEGS -
REDUCES STAGNATION**

4-WAY BY-PASS MIXER

Supplies shower, ensuite basin, clinical basin and toilet to reduce stagnation in the thermostatic mixing valve

LOW LEAD CONTENT

TMV and 4-Way Mixer
(maximum 0.25% actual)



WaterMark
AS/NZS 4032.1
Lic1593



WaterMark
AS/NZS 3718
WMKA 1583

Scan for
more info on
Aquablend[®]
Health TMV



KEEP IT LOCAL



Flexi Hoses do not burst very often in passenger aircraft, jet fighters, surgical operating theatres, or aerospace rockets.

Yet faulty Flexi Hoses used for drinking water-related applications – and which are therefore subject to WaterMark provisions – are responsible for more than a fifth of all property-related insurance claims in Australia.

Our cover story in this issue deals with the prevalence of substandard Flexi Hoses available in our local marketplace. Quite apart from the immense costs associated with faulty Flexi Hose products and repairs, there are obvious health implications arising from ruptured or poorly sealed hoses.

Unsafe drinking water may not be as attention-grabbing as a suborbital rocket explosion – but many would argue that the integrity of all fittings relating to domestic drinking water is *JUST AS IMPORTANT* as quality control in defence, healthcare, aerospace, or aviation.

There are many reasons for our domestic Flexi Hose doldrums, including: [1] a *NEAR*-complete loss of local manufacturing, leading to an inability to independently monitor fabrication processes; [2] a product certification system that ticks compliance instead of penalising non-compliance at point of sale; and [3] a lack of realistic oversight over *FULL* supply chains.

Arguably, a return to more local manufacturing would solve many of the quality assurance weaknesses facing the Flexi Hose sector today.

A push towards greater levels of local manufacturing is at the heart of another story in this issue. John Fennell, commenting in his Copper Connection regular column, urges

readers to support MM Kembla, Australia's last remaining local manufacturer of copper tube. Dealing with a local entity, John explains, stimulates better supply chain management and planning while supporting local employment.

Thankfully, our local plumbing industry continues to innovate in many sectors for the benefit of local markets... Don't miss our stories on the rising popularity of digital Quality Assurance platforms; as well as cutting-edge heat pump technologies from Rheem; plus some practical solutions to laying pipes in unstable ground, courtesy of Plastec jointing systems.

Plumbing Connection also regards safety as a high-priority topic, and this issue is no exception: contributor Chris Halliday – in a piece that all practitioners should study closely – describes the risks of electrocution from plumbing pipework.

Finally, we urge all readers to attend the upcoming Plumbing Supply Forum 2022, Australia's premier business event for the plumbing industry, which will take place on Tuesday 7 June in Sydney. Visit www.plumbingsupplyforum.com.au to register.

All the best for now,

Enjoy the read

John Power

PLUMBING CONNECTION

www.plumbingconnection.com.au

GENERAL MANAGER

Jeremy Sweet
jeremysweet@build.com.au

EDITOR

John Power
0403 818 579
johnpower@build.com.au

EDITORIAL CONSULTANT

Jeff Patchell
jeffpatchell@build.com.au

EDITOR – ACROSS THE TRADES

Sean Carroll
seancarroll@build.com.au

STAFF WRITER

Anna Hayes

GRAPHIC DESIGNER

Sam Elliott

ADVERTISING TRAFFIC MANAGER

Tracey Glanville

SUBSCRIPTION MANAGER

Brigitta Novosell
03 9542 9005

CONTRIBUTORS

Enzo Alfonsetti, Paul Cott, Peter Damaso, John Fennell, Chris Ferguson, Chris Halliday, Andrew Meade, Dr Greg Morwood, Terry Nguyen, Jon Palfrey, Dave Scheine, Ken Sutherland

ADVERTISING

Angelo Sticca 03 9542 9011
angelosticca@build.com.au

TO SUBSCRIBE

1800 623 214
Australia 03 9542 9000
New Zealand +61 3 9542 9000
Fax (with credit card details) 03 9542 9090



www.facebook.com/tradieconnection



www.linkedin.com/in/plumbing-connection/



www.twitter.com/PlumbingCXNMag

By mail, please write to the address below

PUBLISHED BY:
Lanella Media Pty Ltd
2/18-22 Lexia Place,
Mulgrave, VIC 3170
AUSTRALIA
ISSN 1034-3075

**lanella
media**

Disclaimer: The opinions expressed in this magazine do not necessarily reflect those of the publisher. Although all materials are checked for accuracy, no liability is assumed by the publisher for any losses due to the use of material in this magazine. Copyright 2022 by Lanella Media. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without the prior permission of Lanella Media.

Working under the sink just got easier



Less Fittings. Less Joints. Less Risk.

Zetco's WaterMarked Manifold is perfect for connecting multiple home appliances such as dishwashers, kitchen & laundry taps, washing machines, drinking water systems and refrigerators to a single water source. Appliances can be individually connected or disconnected without having to shut down the entire line. **Zetco Valves. Best range. Best quality. Best brand.**



AUSTRALIAN PATENT
NUMBER 2019283939

1300 659 639 www.zetco.com.au



WORLD-FIRST CONSTRUCTION DOCTORATE

Experienced construction professionals in NSW now have the chance to apply their skills to a world-first Construction Industry Doctorate Program (CIDP) that will focus on solving problems to lift performance and embed improved practices in the residential apartment market.

NSW Building Commissioner David Chandler OAM said the CIDP would support the Construct NSW reform and provide industry-wide, solutions-focused research which have short-to-medium-term benefits.

“The OBC has teamed up with the University of Technology Sydney (UTS), Western Sydney University, and University of Wollongong to develop a vocational PhD program intended to meet the needs of industry by matching practical experience with NSW’s world-class research expertise, facilities and resources.

A minimum period of 10 years’ industry experience is required to apply to the CIDP in construction, engineering, design, law manufacturing, business, or technology.

Visit www.uts.edu.au for more information.

DOYEN OF THE PLUMBING INDUSTRY RETIRES

Dallas Collins, National Specialist Product Manager at Plastec, has announced his retirement after a 49-year plumbing career.

The introduction of HDPE as an alternative to PVC for trade waste and drainage applications and changing the way multi-storey stacks are designed and installed are just two examples Dallas Collins can proudly hang his hat on after an illustrious 49-year plumbing career.

“Dallas can now proudly reflect on a colourful and rewarding career in the plumbing industry and we wish him all the best in retirement as he hooks up the van for some well-earned travels,” says Dr Greg Morwood, Research & Development Manager, Plastec.

MORE AFFORDABLE ACCESS TO STANDARDS

Earlier this year, Standards Australia launched the Standards Store, an online platform where Australian Standards™, international standards and technical specifications are available for purchase.

Recently, the e-commerce site introduced a new product series, ‘Small Business Sets’ (SBS). These sets have been designed to suit user requirements of small businesses with 1–19 employees. They offer online and offline access to a bundle of standards that can be found via smartphones, tablets, phones, and other computing devices. Most importantly, these sets provide users with fast, efficient access to

standards at an affordable cost. Standards Australia’s National Construction Code-focused SBS, called NCC Primary References Set, is proving to be a popular and helpful industry tool. The set combines standards and technical specifications listed in Schedule 4 of the NCC, alongside additional Standards Australia publications commonly used by the building and construction industry, supporting users to stay up to date with Code requirements and amendments.

Access to the set for two users costs \$2,673 for a three-year subscription. This is a considerable discount in comparison to purchasing the publications individually.

GALVIN NOW A 4-GENERATION COMPANY

Chris and Paul Galvin, the third-generation Australian owners of Galvin Engineering, are excited to announce that Galvin Engineering has officially become a fourth-generation family business.

Tim Galvin, a fourth-generation family member, has accepted an offer to purchase shares in the company, and is of now an owner and director of the business.



SHELL V-POWER RACING TEAMS UP WITH RHEEM AGAIN

The Shell V-Power Racing Team and Rheem Australia are excited to announce their partnership extension for the 2022 Repco Supercars Championship season.

Dick Johnson Racing (DJR) co-owner Ryan Story said he is thrilled that Rheem continue to support the Team and that it is important to acknowledge the continued support.

Rheem Managing Director, Chris Taylor, said Rheem is proud to continue their long-standing partnership with the Shell V-Power Racing Team in 2022.

VINYLCYCLE LAUNCHED

Recently, the VinylCycle label was launched to recognise and reward use of recycled PVC.

This initiative is the result of a collaborative partnership between Vinyl Council of Australia (VCA) and Good Environmental Choice Australia (GECA) to verify recycled PVC content claims and encourage the uptake of recycled PVC and product design innovation.

VCA, in conjunction with GECA and with consultation from VCA members and the broader PVC, or vinyl, industry, has developed ‘The Specifications

for the Verification of Recycled PVC Content Claims in PVC Products’. The primary purpose of the specifications is to define criteria for the verification of products claiming to be made wholly or partially from recycled PVC or vinyl.

Claims shall consist of the manufacturer or distributor indicating the minimum percentage of recycled PVC content in a particular product range. VinylCycle is available to applicants claiming at least 10% of the PVC compound (by weight) constituting recycled PVC.

For more information visit <https://vinyl.org.au/vinylcycle>

ABEY'S S&P SPEED TRAP WITH INTEGRATED AAV ALL-IN-ONE SYSTEM

Eliminates unnecessary fabrication work

Abey's new S&P Speed Trap saves you time and money. By drawing air through the integrated AAV valve, the system neutralises syphonic pressure before it reaches the seal of the trap. Therefore, it provides the equivalent of a ventilated system without the installation of costly and unsightly ventilation pipes.

- | Prevents the release of foul air
- | Reduces risk of syphoning
- | Can be used in most internal situations
- | Allows for greater design flexibility
- | For single fixture only
- | Used in both new and existing systems

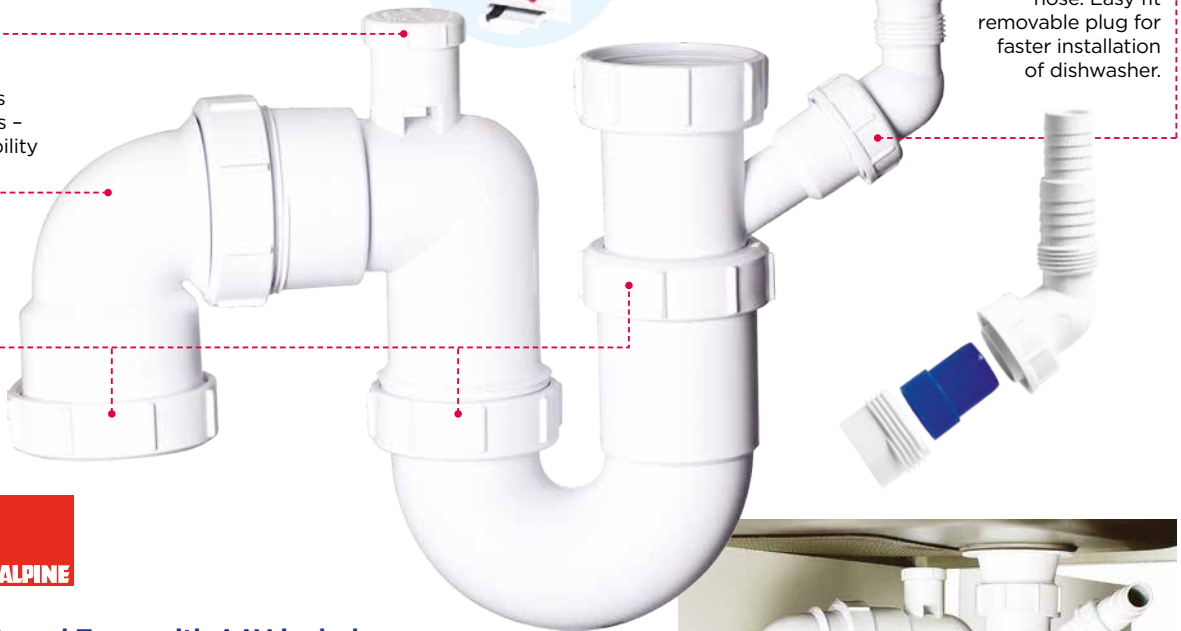
The unique design draws air through the valve and not through the water seal eliminating gurgling for a quieter discharge. Integrated AAV vents internally and eliminates the need for secondary ventilation and additional pipe fabrication.

S&P Speed Trap fittings for 40 and 50mm pipes - allows for greater flexibility in plumbing design.

Adjustable fittings provide easy adjustability and watertight results.



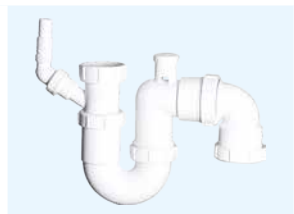
Extended universal dishwasher inlet with 25mm BSP thread for easier fitting of outlet hose. Easy fit removable plug for faster installation of dishwasher.



Abey's range of Speed Traps with AAV include:



SP40AV - 40mm Trap



SP50AV - 50mm Trap



C10AV - Bottle Trap



Abey Australia manufacture and source the best of breed plumbing products the world has to offer. Their range of Fantastic Plastic plumbing products provide plumbers superior quality plumbing solutions to save them time, space and money.



THE TRADESMAN'S CHOICE



NEW RIDGID WATER JETTER

Ridge Tool Australia announces a new KJ-5000 GEN IV Water Jetter as part of RIDGID's commitment to continual development of technological precision products.

The RIDGID KJ5000 GEN IV is built to handle commercial and industrial pipe clearing applications for 2" to 10" [50mm to 250mm] drain and sewer lines.

It provides 5075 psi actual pump working pressure with a water flow rate of 23 L/min powered by an Italian pump and Honda GX690 electric start petrol engine. A large 25L fuel tank with level gauge is integrated under the chassis mount. Job site access is provided with a 60m quality 3/8" primary hose and a 60m 1/4" remote hose.

Other great features include a 4-nozzle kit, a washer lance, a large 40L on-board leak-free water tank, a 3/4" water inlet, low level water cut-out sensor, solid frame construction, easy reach emergency stop button, oversized puncture-proof wheels, a battery isolator switch and hand wash/tank drain facility.

www.ridgid.com.au

LEAD-FREE, PRE-PLUMBED TROUGHS

Introducing RBA's new range of lead-free, pre-plumbed troughs. Perfect for the robust school environment, parks and public amenities. They offer a 6-Star WELS rating, while meeting AS1428.1, VSBA and EFSG guidelines. They are particularly user-friendly as the tapware activates at only 20N of force and comes with a two-year warranty. Most importantly, the entire assembly is pre-built, meaning quick installation. And completely Lead-Free, including the pipework!

Talk to RBA's highly trained team today about your next project. Revit and CAD files are available upon request. "We're looking forward to customising our solutions to meet your project's needs."



www.rba.com.au
1300 788 778, or sales@rba.com.au

ADJUSTABLE FLUSHPIPE

Caroma's adjustable flushpipe solves pan installation issues where the finished floor tiling has been laid higher than specified, preventing the pan inlet from aligning with the cistern flushpipe. It also allows for the outlet centre to be adjusted to the correct flushpipe height, without the need to remove tiles, saving on significant rectification costs and on-site time.

This adjustable flushpipe allows plumbers to quickly realign the water inlet without visible damage to bathroom walls. Caroma's adjustable flushpipe is the new standard for all back inlet concealed Invisi Series II suites at no extra cost.



www.caroma.com.au



BLUNDSTONE #984 BACK TO WORK

The new Blundstone #984 work boot is a stone/water-resistant nubuck, 150mm-high safety boot. Featuring seven-eyelet lace with lace-locking device, a convenient heavy-duty zip with zip fastener, as well as moulded TPU bump cap for added leather protection.

There is a padded tongue and collar, thermal regulating bamboo lining, plus a low-density shock-absorbing PU midsole with anti-bacterial agent.

The rubber outsole offers slip resistance in varied environments. This boot is heat-resistant to 300°C and is also oil-, acid-, and organic fat-resistant.

www.blundstone.com.au

TWO-WAY RADIO INSTEAD OF PHONE

Motorola Solutions has announced the launch of the MOTOTRBO R7 in Australia, a digital two-way radio with advanced audio features and a slim, rugged design to connect teams in loud, rough, and unpredictable environments.

The MOTOTRBO R7 voice communications work on the digital mobile radio (DMR) standard and deliver sharp, clear speech for better intelligibility, with industrial-level noise cancellation, automatic feedback suppression and automatic volume adjustment based on background noise. Critical and detailed information is displayed on the home screen.



www.motorolasolutions.com



IAPMO AND PICAC BRING INDUSTRY HEAVYWEIGHTS TOGETHER TO HELP REALIZE THE POTENTIAL OF HYDROGEN

IAPMO Oceana, The IAPMO Group's Australia-based third-party product testing and certification provider, in partnership with the Plumbing Industry Climate Action Centre (PICAC), recently assembled more than 50 leaders from the fields of science, engineering, energy production and the plumbing and gas fitting industry to participate in a Hydrogen Roundtable at the Royal Society of Victoria.



Hosted by Royal Society of Victoria's President Rob Gell, an authoritative voice on the environment, the roundtable featured keynote presentations from AEMO, AGIG, Climate Works, Countrywide Renewable Energy, Siemens and Ampol. The event commenced with an address from Dr Alan Finkel, Special Adviser to the Australian Government on Low Emissions Technology and Chair of the Technology Investment Advisory Council.

"Every day the benefits of hydrogen, especially green hydrogen, which is produced using renewable energy, are becoming clearer," said Paul Bonsak, IAPMO Oceana managing director.

"We have some enormous natural advantages here in Australia, and especially in Victoria, with our gas networks. There is a great deal going on in the hydrogen space, and we need to make sure we capture the intelligence and share it. That is what the roundtable was all about – bringing together the people with the knowledge and ideas about how we can turn hydrogen from a bit player into a major player in terms of the energy mix."

Green hydrogen has enormous potential as a domestic fuel source, and industry feedstock and as an export earner for Australia, according to the participants. To reach its potential, presenters stated, the industry must find a path to scale up and develop the products, systems and skills needed to make the use of hydrogen mainstream.

The IAPMO Group tests and certifies products and develops codes and standards, including for gas- and – in prospect – hydrogen-utilizing products, that protect humankind on six continents.

"Consumers need time and confidence to get used to the idea of hydrogen," Paul Bonsak said. "Products, especially safe hydrogen products, are going to be key to building consumer confidence and to the success of this industry. That's IAPMO's focus, but it is going to take a variety of different parts of the sector working together to make the industry take off, including training, which is where PICAC is so important, but also regulation, government policy, production, transport, the whole supply chain.



That's why we thought a roundtable approach would help and it certainly did. We have some real momentum and clarity coming out of the discussions." Reflecting the fact reaching the potential for hydrogen will be a joint effort between government and industry, the event culminated with a dinner address from the Hon. Lily D'Ambrosio MP, Victorian minister for Energy, Environment and Climate Change.

"The Roundtable was a great success, with high levels of engagement from participants," Paul Bonsak said. "Industry now has a better and shared understanding of the current industry blockers, and the enablers, and how, as an industry, we can work together to clear away roadblocks and find the path to a green hydrogen future for Victoria and Australia."

For more information, please contact IAPMO on 03 8684 9580 or visit www.iapmooceana.org

FLEXI HOSES

CHEAP PRODUCTS
CAN BITE YOU

FLEXI HOSES REPRESENT ONE OF THE MAJOR PRODUCT CLASSES IN PLUMBING – BUT INADEQUATE QUALITY CONTROL CONTINUES TO TORMENT INSTALLERS, PROPERTY OWNERS AND INSURANCE COMPANIES. JOHN POWER INVESTIGATES.



Four years ago, this magazine described Flexi Hoses as a product class in crisis, with 22% of all water damage-related property insurance claims blamed on faulty Flexi Hose fittings. Average repair costs at the time, based on 2016 data, were cited as \$4,818 per claim nationally, according to NRMA Home Insurance.

Have conditions improved since then?

"In reality it's probably become a little bit worse," says Michael Glover, General Manager Aquaknect Flexibles [A/Asia] P-L, one of Australia's last remaining local manufacturers of Flexi Hoses. Aquaknect is a Queensland-based, ISO 9001-certified company with 33 staff.

More recent insurance claim data supports this bleak assessment. As reported by ABC Radio¹ in late 2021, some 9,651 claims in Queensland alone were lodged with RACQ in 2018 in relation to Flexi Hose-related faults... at

an average cost of \$14,145 per claim.

Clearly, there is something fundamentally wrong with this product class, despite it being subject to stringent WaterMark quality controls and rigorous Australian Standards. In theory, Flexi Hoses sold and used in Australia and New Zealand *should* be reliably free from endemic faults as a public health necessity, quite apart from matters of property damage. This article explores why the opposite is true.

[NB: for the purposes of this article, we are dealing with water-carrying hoses and not products designed for gas markets.]

PROBLEMS DEFINED

Flexi Hoses are part of every plumber's toolkit, but their popularity sometimes masks the complexity of these products. Each Flexi Hose consists of a flexible inner tube, a braided

metal sleeve, and nut-tightened end fittings meant to provide a secure and watertight seal. Inferior design or material faults relating to any one of the above elements can lead to catastrophic product failure.

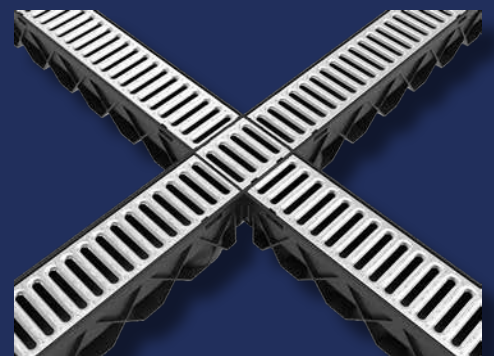
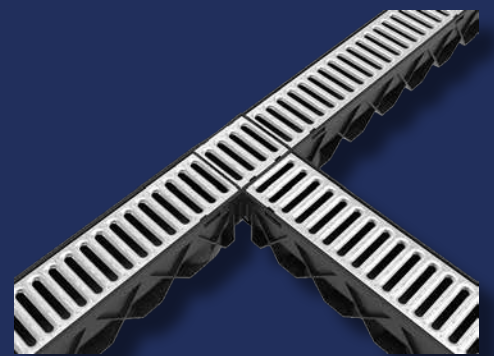
Australian Standard AS/NZS 3499:2006 *Water supply – Flexible hose assemblies* is the primary reference governing the quality control of Flexi Hoses. This Standard, in turn, informs WaterMark performance benchmarks for hoses up to 20mm diameter, though a revised Standard is about to increase this threshold to 50mm [more on this revision below, see 'New Revised Flexi Hose Standard']. Most plumbers will be familiar with the 8-10mm diameter hoses used in typical domestic settings.

Not only does the Standard prescribe minimum material and design parameters, but it also includes a suite of long-duration testing regimes ➤



RELN

Drainage made easy.



Storm Drain 4-Way Connector

The new 4-Way Connector makes installing Storm Drain even easier.

The 4-Way Connector allows for easy corner, tee and cross configurations. It is an interlocking channel system, so there is no need for any corner or tee pieces. Supports domestic passenger vehicles, when installed correctly in concrete.

- ✓ Easy to Install
- ✓ Made in Australia
- ✓ Strong, Durable & Made to Last
- ✓ Available in Black Plastic, Galvanised Steel and Stainless Steel Grate

1300 137 356

reln.com.au

COMMUNITY ATTITUDES TOWARDS POOR-QUALITY FLEXI HOSES

Public attitudes towards poor-quality Flexi Hoses are extreme and varied, highlighting the complexity of reforming the category.

The insurance industry, for instance, currently takes a lenient approach towards poor-quality product: "Generally, we would not decline a claim if it was non-compliant with WaterMark standards," a spokesperson from IAG Insurance told *Plumbing Connection*. This kind of acceptance, no doubt based on customers' convenience and unquestioning capacity to pay higher premiums, could change at any moment, as we have seen already with certain building products such as façade cladding: some insurers no longer honour claims involving damage arising from non-compliant, flammable materials. Also, there is nothing stopping insurers from offering cheaper premiums to owners of properties with demonstrably superior fittings, perhaps underpinned by a more sophisticated and detailed construction sign-off than existing 'compulsory' regulations deliver! Food for thought if you are an insurer!

Other agencies are less forgiving. For instance, at the time of writing, South Australia's Department of Infrastructure and Transport is refining a draft Guide Note – *Plumbing: Braided Flexible Hose Connections* – listing requirements for the use of Flexi Hoses in all departmental projects. The Note advises that "flexible connections are to be the exception, not the rule."

Another government agency, the Department of Mines, Industry Regulation and Safety in WA, issued a similarly styled Technical Note several years ago – *Braided Flexible Hoses* – designed "to assist the plumbing industry to comply with the prescribed plumbing standards and manufacturer's installation instructions when installing braided flexible hoses."

In Victoria, WorkSafe issued a safety alert in May 2020 on the *Safe selection and use of flexible hose assemblies*, explaining that "WorkSafe is issuing a reminder about the risks with using unsuitable flexible hose assemblies at dangerous goods facilities following two recent incidents that resulted in loss of containment."

We can only wonder: would such advisories be necessary if regulators enforced product compliance?

that all fittings must pass as part of the WaterMark certification process.

Michael Glover says these strict protocols, however, are often sidestepped or ignored, or degraded once WaterMark certification has been approved with a 'golden sample' [i.e. a high-quality sample used to gain an initial accreditation; subsequently, product quality is degraded for mass production].

"There are inferior products that continue to enter the country," Michael laments. "Overseas manufacturers secure distribution down here through a distributor, and what happens is they start making the product cheaper – they start taking the brass out of nuts, making them lighter, or using a lesser-diameter stainless braid. When you look at some of these items, the actual nuts only engage by two-to-three threads: what they're doing is removing some of the key costs from the manufactured product."

WIDESPREAD DEFICIENCIES

Let's look in turn at various product deficiencies affecting the three main hose elements: sleeves, tubes, and connectors.

The braided sleeve is what holds the inner tube together and prevents it from bursting or herniating under pressure. Braid designs are uniform, through the wire gauge, its quality, and the consistency and angles of the weave can vary tremendously.

As an example of manufacturing tolerances of high-quality fittings, Michael notes his own company's insistence on the use of 0.23mm stainless steel wire for making the braided sleeve for a typical hose, on the basis that a greater thickness covers more surface area.

"By contrast, the smallest of our competitors' products, we've found, is 0.13mm," he says, explaining that Aquaknect routinely tests rival products for compliance.

There is a critical issue with the braid, he adds. The braid angle must be exact because the inner tube, while being able to move under different pressures, should not cause the surrounding sleeve to elongate and expose a weak spot. An ideal weave angle of 60 degrees is considered necessary for long-term, reliable performance. "But I've seen braids on product that is available in Australia that are flat, i.e. sitting at 80-90 degrees, so as soon as that hose starts to build up pressure, the braid doesn't move. The inner tube will then find a weak spot within the braid and herniate out and blow."



Michael Glover from Aquaknect Flexibles.

The integrity of the inner tube is equally important to overall product performance. There are two main material options – EPDM rubber or PEX – used for manufacturing Flexi Hoses. Michael says Aquaknect uses only Australian-made EPDM rubber, which he says is superior to PEX for both hot and cold water applications [up to 180 degrees Celsius.] "Some of the PEX hoses don't handle hot water very well," he notes. "When PEX first came out there was PEX A, which was very rigid: if you took it above 90 degrees it would kink and form an extreme weak spot. Then PEX B came out, which is more flexible but nowhere near as flexible as EPDM rubber." PEX hose has another problem, he says, which is a 'memory',



Non-compliant Flexi Hoses cause millions of dollars' worth of damage to Australian homes every year.

meaning the tube will retain the shape of a long-term form, potentially leading to a weak spot under fresh configurations.

Connectors, of course, are also crucial for long-term hose integrity, as even a tiny leak at either end of a hose can cause corrosion of the sleeve. Michael says the best-quality fittings are made with DR brass nuts and designed with appropriate barbs on the actual tails to create effective seals for either flat seat or cone seat configurations. "And the steel ferrule we use is 316 stainless - we have a crimp pattern that bites in exactly the correct spot to get on the barbs; all up we have seven barbs sitting on each tail.

"On our flexible connectors, at the top of that ferrule, we have a little hole that we call a witness mark, which ensures when it's going to assembly that the tube is sitting right up at the top of that ferrule, so when it's crimped it's not sitting back and under a crimped area."

TESTING & CHRONIC NON-COMPLIANCE

According to Michael, there is a staggering amount of non-compliant Flexi Hose sold in local markets, as demonstrated time and time again by Aquaknect's own in-house testing procedures.

"We're not a certified lab by any means," he says, "but we put all our products through a testing regime before we submit them for [WaterMark] approval because it's a costly exercise. We also test competitors' products

and see how they perform. WaterMark has an 'ageing test', meaning a hose must perform for seven days at 1,500 kPa at 90 degrees Celsius to meet the Standard.

"At the end of the seven days you take the pressure up to 3,000 kPa for an hour. Then you remove it from the tank and put it in a tensile testing machine - basically you're engaging the end fittings and seeing if the tails will pull out of the tube, and that's all part of the standard.

"Some of the hoses we test, which are readily available in Australia through mainstream retail outlets, don't last more than 10 minutes."

Michael estimates that only 60-70% of Flexi Hoses sold in specialist outlets actually comply with the standard, "and then you move to the hardware environment, where price dominates, and I'd say on some of the shelves they wouldn't have a single hose that could last."

NEW REVISED FLEXI HOSE STANDARD

At the time of writing, the Australian Standard for Flexi Hose - AS/NZS 3499:2006 *Water supply - Flexible hose assemblies* - is being revised.

The old standard refers to Flexi Hose products up to 20mm diameter. The new standard will address Flexi Hose products up to 50mm diameter, defining a much larger suite of conformance and testing criteria for ranges including 25mm, 32mm, 40mm, etc.



FINANCE DEALS



VIPER X
23LPM @5000PSI
+ ACCESSORIES

Only **\$74*** /WK+GST
Total \$14,690+GST

- Sewerjett Remote Mini Reel with 60m x 1/4" jetting hose
- 7 Piece Rootax Nozzle Box
- Jetting lance and trigger
- 15m x 1/8" Whip Hose
- Jetting Safety Sign



VIPER X PHANTOM
31LPM @4300PSI
+ ACCESSORIES

Only **\$87*** /WK+GST
Total \$16,929+GST

- Sewerjett Remote Mini Reel with 60m x 1/4" jetting hose
- 7 Piece Rootax Nozzle Box
- Jetting lance and trigger
- 15m x 1/8" Whip Hose
- Jetting Safety Sign



Call us on 1800 816 830 to find out more.

enviroline.net.au

* Approx. Based on 5 years with a \$ 1200 deposit.

How many non-compliant Flexi Hoses have been recalled from the market, or penalty notices imposed against manufacturers?

"None that I'm aware of," Michael says.

CERTIFICATION AND ENFORCEMENT

As pointed out in this magazine's Winter 2021 cover story, WaterMark certification requires applicants to prove that their products comply with a range of standards, as endorsed by an approved WaterMark Conformity Assessment Body (WMCAB). There are 10 WMCABs around the world, which are meant to provide rock-solid scientific assurance of the compliance of all products bearing their stamp of approval. Post-WaterMark approval, it is up to plumbers – not retailers or wholesalers – to monitor the correct use and compliance of WaterMarked products.

Somewhere between WaterMark certification and product installation, the system is evidently breaking down.

"If it's a level playing field, I don't have a problem," Michael says. "But it's not. The Australian Competition and Consumer Commission (ACCC) is largely ineffective – you go down the track of proving at great expense that another company's product doesn't comply, and what happens to them? Nothing."

Michael believes that a more transparent, locally accountable WaterMark certification process would help solve many problems.

"There are some great certifiers within Australia. For example, we



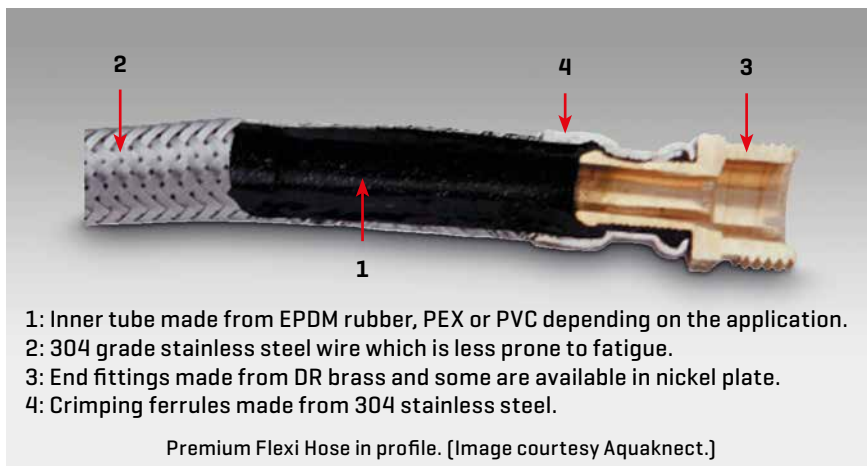
High-performance Flexi Hoses must adhere to strict quality standards relating to inner tubes, metal sleeves and connectors. (Image courtesy Aquaknect.)

started business in 1986 and we've been with SAI Global since day one. Our license number is 105. If you look at WaterMark license numbers now, they are in the 33,000–34,000 range. Now there are certifiers that operate offshore as well."

WaterMarked products that fail to live up to their certification are only part of the problem, Michael concedes.

Other issues relate to:

1. the importation of larger devices such as sink and basin mixers, with pre-fitted Flexi Hose attachments of questionable quality.
2. handy men and DIYers tightening connections above recommended tolerances.
3. the lack of local manufacturing, which hampers the direct scrutiny of products and supply chains.



- 1: Inner tube made from EPDM rubber, PEX or PVC depending on the application.
- 2: 304 grade stainless steel wire which is less prone to fatigue.
- 3: End fittings made from DR brass and some are available in nickel plate.
- 4: Crimping ferrules made from 304 stainless steel.

Premium Flexi Hose in profile. (Image courtesy Aquaknect.)

As Michael says with understandable exasperation, the great tragedy of non-compliant Flexi Hose products used in Australia and New Zealand, aside from the resultant property damage and risks to human health, is the utter needlessness of cutting corners. Michael estimates that a typical household could be fitted with high-quality Flexi Hoses for about \$20 more than the cost of using inferior products. ■

Footnotes:

1. ABC Radio Brisbane, 2 December 2021.



HYDRALUX

SMARTER HOT WATER

**Flexible in design.
Quality you can depend on.**

Hydralux is the smart stainless steel thermal storage vessel built for Australian conditions. Stand out quality at an understated price.



Storage



Single Coil



Twin Coil



NEW PRODUCT RELEASE



TRANSCRITICAL CO₂
HEAT RECOVERY VESSELS

Ask us today about our new
CO₂ heat recovery vessels,
an Australian made first!

Getting the job done

wilson
CUSTOMISED HOT WATER

130 - 140 Merrindale Drive Croydon South VIC 3136 wilsonhotwater.com.au 1800 302 050

DIGITAL QA TICKS ALL THE BOXES

Historically, worksite quality assurance has been a paper-based, retrospective chore rather than a genuine record of procedural excellence. However, on-site digital QA platforms are changing the way contractors and subcontractors sign off their work. **John Power** reports.

Digital platforms using mobile devices like smartphones and iPads have affected all industries, including commerce, healthcare, education, retail, hospitality – and now building and construction, most notably in relation to the delivery of evidence-based quality assurance [QA].

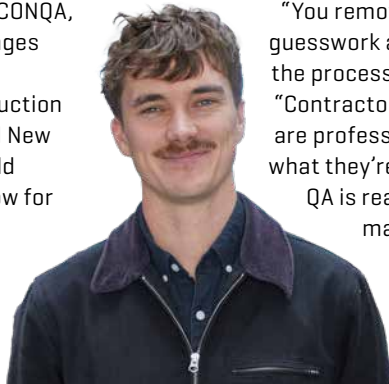
QA in construction in recent decades has sometimes been a ‘hit and miss’ affair, with many contractors and subcontractors regarding their sign-off obligations as ‘just another step’ in the long bureaucratic journey towards job completion and invoicing.

All that is changing. As happens so often with major worksite innovations, ‘big construction’ (more than 25 personnel) is at the forefront of cutting-edge reforms. This means contractors and subcontractors wishing to gain work with larger companies need to be aware of these new digital platforms – and willing and able to use them. NB: digital QA platforms are increasingly being adopted as *mandatory* procedures on worksites.

Furthermore, it seems inevitable that digital QA practices will trickle down from larger companies to small-to-medium firms, as smaller outfits gain familiarity with the technology and see the many benefits of keeping ‘as you go’ digital records.

Why is digital QA so revolutionary?

Daniel O’Donoghue, co-founder and Director of CONQA, which creates and manages customised digital QA packages for the construction industry in Australia and New Zealand, says in-the-field digital QA processes allow for



Daniel O’Donoghue,
Co-Founder and
Director of CONQA.



CONQA on site with Premier Services Group on Queen’s Wharf Brisbane being built by Multiplex.

real-time data collection [including imagery] that would be impossible using traditional paper-based methods.

The primary motivation for using a digital QA platform, Daniel explains, is quite fundamental: a desire to create better buildings. However, there are plenty of additional advantages of embracing digital QA.

“You remove as much of the guesswork as possible from the process,” Daniel says.

“Contractors and subcontractors are professionals – they know what they’re doing – so digital

QA is really just there to make sure everyone has completed things right, that everything is in order, and they

can just move on with peace of mind knowing they have checked everything.”

By creating a *meaningful* sign-off process with real-time digital QA, workers are motivated to deliver peak productivity and performance in the first instance. Signing off work ‘as you go’ also removes the need for lengthy, time-consuming, often imprecise, retrospective reviews that can add hours of desk work to a working week or month.

“Digital QA, I should add, is also massively used as a protection device,” Daniel says. “We’ve got examples of customers who have been able to reduce their insurance premiums because they can demonstrate that they have done work correctly: for example, the ability to prove that a fault was attributable to a post-construction

incident, rather than the actions of an original construction contractor, can save a construction company from the headaches of litigation and associated insurance payouts.

“Simply ‘minimising risk’ is a powerful incentive for adopting a digital QA system.”

More subtle outcomes can also result from a sound digital QA system. For instance, there is often ambiguity about exactly what needs to be signed off, and in what order in complex systems involving both plumbing and electrical work – a predefined digital QA checklist can help remove these kinds of uncertainties by spelling out the parameters of each task and stating who is accountable for its completion.

AT A GLANCE - ADVANTAGES OF USING DIGITAL QA	
ADVANTAGE	OUTCOME DELIVERED
Improved Job Quality	The sign-off of predefined tasks ‘as you go’ encourages genuine, real-time assessment of job compliance and superior workmanship with fewer errors.
Less Rework	Superior workmanship and compliance in the first instance reduce the risk of costly rework later.
Time Savings	Digital QA platforms are invariably designed to be user-friendly, speedy tools.
Less Paperwork	A digital QA checklist on-site removes the need for manual, paper-based office work later.
Improved Task Sequencing	Defining and allocating tasks prior to construction clarifies task order and the sequence of sign-offs.
Long-term Catalogue of Compliance	Digital QA providers typically retain databases for years as a long-term record of compliance.
Dispute Resolution/ Legal Protection	Evidence-based QA can serve as a record of satisfactory task completion in the event of future litigation against a constructor or their (sub)contractors.
Lower Insurance Costs	Many companies using digital QA platforms benefit from lower insurance premiums thanks to the existence of a detailed, real-time record of satisfactory job completion.

USING DIGITAL QA

Digital QA starts with the creation of a project-specific checklist of construction elements that need to be completed and signed off.

Daniel says CONQA, for instance, sits down with project managers and supervisors prior to construction to create a comprehensive, customised database of checklist items. This database, which might include hundreds or even thousands of items in a major project like a high-rise structure, might feature level-by-level tasks involving roughing in, fit off and commissioning.

“Let’s say you’re dealing with a 20-storey building with 10 apartments on each level, and each apartment has three checklist activities. If each activity includes 10 checkpoints, then there will be 6,000 items overall to sign off. One of our customers who is a plumbing contractor working for one of the massive high-rises in Melbourne has over

RIDGID®

WATER JETTER KJ-5000 GEN IV

NEW



**Built to impress.
Built for the
Australian market.**

**POWERFUL
5000 PSI**

- 5075psi at a water flow rate of 23 l/min
- Honda GX690 electric start engine
- Italian high quality enhanced UDOR pump
- 60m primary reel with hose reel roller guide system
- 60m remote reel for increased job site access
- Large 25L fuel tank and 40L on-board water tank
- Convenient nozzle kit for job flexibility
- 2" - 10" (50mm - 250mm) drain & sewer lines

PRESS TOOLS

NEW

Highly engineered to deliver superior quality and durability



SCAN FOR VIDEO

Brushless Motor

No Scheduled Maintenance

Bluetooth® Connectivity†

† Bluetooth® Connectivity – Connect to your tool through your phone and manage important information like cycle count, battery life and other tool diagnostics. Please contact RIDGID Australia for compatible fitting systems and jaw sizes for each press tool.



REQUEST A DEMONSTRATION or LEARN MORE*

Scan the QR code to request a demonstration or use the web address below

➔ www.ridgid.com/au/en/request-demonstration

*Selected products only and subject to availability and location. All pictures shown are for illustrative purpose only and may not be an exact representation of the product. PMGR10322/PC



T 1800 743 443 E ridgid.australia@emerson.com www.ridgid.com.au

CONNECT WITH US ridgid australia RIDGID Tools ridgid_australia

DIAGNOSTICS PRESSING PIPE & TUBE TOOLS DRAIN MAINTENANCE POWER TOOLS

20,000 checklists they have to do for that project.” [Electrical and HVAC specialists might each handle checklists of similar magnitude.]

Without a real-time digital QA process, extensive checklists can be forgotten, deferred to a later date, or simply sidestepped. “If a checklist is done after the fact, it actually serves very little function,” Daniel adds. “So, our philosophy is to focus on our customers, and to make it as easy as possible for that site supervisor or end user supervising their crew to do these checks.”

Ease of use is a critical component of any workplace QA platform, as large numbers of contractors and subcontractors with varying levels of competence using new technologies need to get up to speed quickly and painlessly.

“Simplicity is probably our biggest asset because you get engagement,” Daniel reiterates, explaining that even senior tradespeople generally have no difficulty coming to grips with checklist processes. “We offer training anyway, so useability is not really an issue.”

CONQA clients like Lend Lease, Multiplex, Scentre Group, Kapitol Group, and others are clearly forging new trends in the adoption of digital QA platforms. And even though most major construction works continue to depend on paper-based QA records, the balance, as mentioned, is shifting.

“In Victoria, we’re seeing significantly fewer quality issues when subcontractors use CONQA,” says Matt Monger, QA Manager at Multiplex. ■

DIGITISING ALL PHASES OF CONSTRUCTION

Some construction companies are using digital platforms to not only control QA, but also to manage all collaborative aspects of construction from design through to handover.

A good example is the construction giant Hansen Yuncken, which is in the final stage of implementing Autodesk’s BIM 360 cloud-based project collaboration and management system.

Peter Salvesson, CEO of Hansen Yuncken, says this platform is designed for use across all project phases.

“It has been a transformative change for Hansen Yuncken, which commenced many years ago when we first adopted BIM-based processes and implemented Autodesk’s ‘Classic’ Field software, accessing daily data for reporting into our internal SharePoint-based management system, ‘HYway’.

“Using a cloud-based storage solution for project documents allows our site teams to access the most up-to-date versions of plans and models on their mobile devices. Updates from design consultants and subcontractors are immediately visible to team members in the field. Because the entire project team is notified in real-time the instant a change is made, this allows them to comment on or question any points requiring further clarification.

“Having a central cloud-based location where all data can be surfaced is incredibly powerful. Using Power BI dashboard integration, BIM 360 makes it easy for our teams to take multiple data sources and use different templates to create reporting dashboards. Dashboards can be tailored to the site team, executives, and any other stakeholder. This ensures the right information is delivered to these teams in a relevant and meaningful way.”

According to Peter, all contractors and subcontractors working on a project are required to use the platform: “Subcontractors can view and action their allocated checklists and ‘Issues’ from their mobile devices, compatible with both iOS and Android systems.”

Apart from streamlining workloads and schedules, the platform is designed to enhance safety by allowing the company



Peter Salvesson, CEO Hansen Yuncken.

to communicate safety-specific checklist templates, assign them to members, and then identify any safety-related trends in the field that might need specific attention.

“By adopting complete lifecycle software systems,” Peter adds, “construction projects can run more smoothly, information can be more easily communicated, and the handover process is seamless due to the power of today’s connected construction software.”

Worker training is part and parcel of the process to ensure all participants are using the platform effectively.

Once a project is completed, the BIM 360 database is an invaluable time capsule of each project’s full construction history, which is highly important as a guide for future maintenance works, renovations or additions.

“If the client scopes the contract digital deliverables appropriately, the BIM data can provide unparalleled insight into how buildings function post-construction, especially for things like MEP [mechanical, electrical, and plumbing] and HVAC systems, energy usage, and solar thermal performance,” Peter says. “It can be an irreplaceable tool for building operations and key to reducing lifecycle costs, which are proportionally massive: 70%–80% of a building’s lifetime costs occur after its construction. With teams working within a shared intelligent model, elements of operations and maintenance can be vetted in advance.”

PLUMBING CONNECTION

GET THE WHOLE STORY
www.plumbingconnection.com.au

www.facebook.com/tradieconnection
www.twitter.com/PlumbingCXNMag
www.linkedin.com/in/plumbing-connection/

HOLMAN

PLUMBING

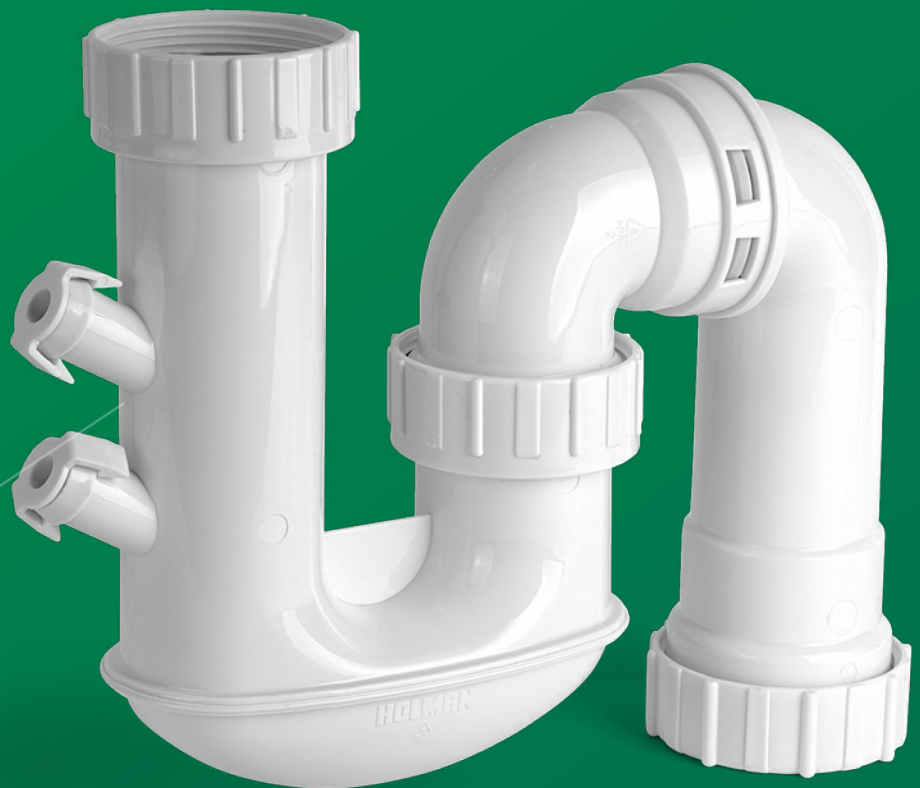
AVAILABLE
NOW

S&P TRAP RANGE

- ✓ ALL OVERFLOWS / DISHWASHER CONNECTIONS ARE PRE DRILLED & COME WITH CAPS
- ✓ APPROVED FOR INSTALLATIONS UP TO 60°C
- ✓ AUST STANDARD APPROVED AS/NZS2887

50MM COMBINATION S&P TRAP

HPS5101



FIND OUT MORE FROM OUR TEAM

Perth Warehouse & Head Office
Sales@holmanindustries.com.au

Sydney Warehouse
Sydney@holmanindustries.com.au

Melbourne Office & Warehouse
Melbourne@holmanindustries.com.au

Brisbane Warehouse
Brisbane@holmanindustries.com.au

www.holmanindustries.com.au/plumbing

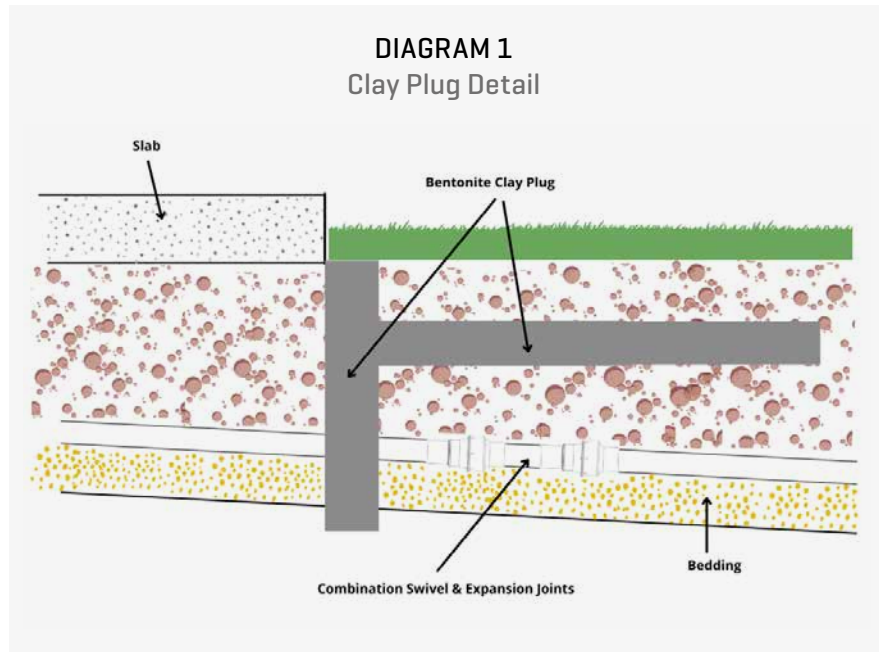
GUIDANCE FOR PLUMBING IN MOVING AND REACTIVE SOILS

The new Appendix G to AS 3500-2 provides a helpful guide to plumbing in unstable or reactive soils. **Chris Ferguson** and **Dr Greg Morwood** from Plastec review the changes.

The time has come for plumbers and builders to pull together to build buildings which better resist the forces of reactive or moving soils.

Despite being a requirement for more than 20 years through the standard AS 2870, it has not been clear to plumbers how they could meet those requirements. The latest update to AS 3500.2 [Appendix G] finally gives guidance for plumbers and builders.

Wherever drainage or stormwater pipes are installed in soils that can move, due to the soil type or site preparation, there is a risk of damage to those pipes. Damaged pipes will lead to an increase in water around the slabs of buildings, aggravate soil movement, and elevate the risk of cracked buildings. Authorities and regulators have long attempted to mitigate the impact of ground movement through standards. There are several class action lawsuits with construction companies and developers finding themselves in hot water as suburbs are sinking and heaving, resulting in cracked slabs, broken drainage and building damage. This leaves property owners angry and distressed, with no alternative other than legal action.



The challenge for authorities has been clarifying the responsible party – plumbers are not responsible for footing and slab designs; meantime, builders are not responsible for the plumbing designs. AS 2870 [Residential Slabs and Footings], published in 1996, included

requirements for builders to provide flexible connections on plumbing in certain soils to prevent damage to the system. The methods to achieve these flexible connections were not specified, but referred the plumber to the AS 3500 series, which also did not specify



Images 1–3. Photo of clay plug installation.

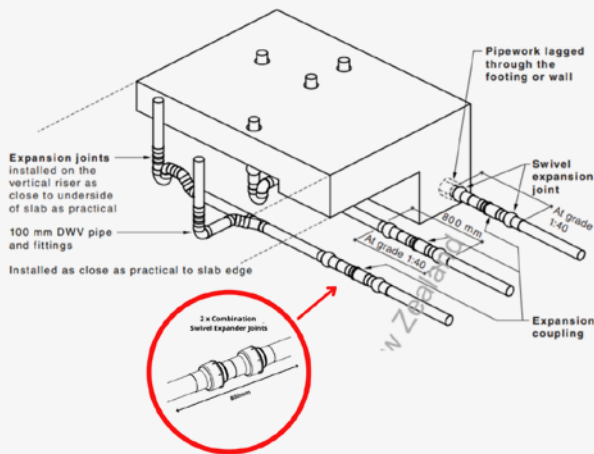
methods to achieve this. An unsuccessful attempt by the industry and regulators to incorporate design guidelines for plumbers was made in an earlier amendment of AS 3500.2. Until now the articulation designs installed under the slab had been left to the domain of engineers and consultants. While they have done well to deal with this, it is only with the publication of AS 3500.2-2021 that there is a clear guideline on how plumbers can meet the requirements of AS 2870.

Design and installation guidance for plumbing in unstable and reactive soil now forms part of AS 3500-2 Appendix G, which provides a set of examples which the plumbing designer can use directly. It addresses the following:

- Soil classifications.
- The importance of site preparation and surface water mitigation.
- Protecting moisture ingress via the plumbers' trench using clay plugs.

DIAGRAM 2

A second swivel/knuckle joint can help deliver full articulation.



- The installation of flexible joints [articulation] when pipework exits the slab/footing.
- Protecting underground structures such as chambers, tanks, etc.
- The installation of flexible joints [articulation] under the slab.
- Articulation for vertical and graded risers.
- Applies to both Drainage and Storm Water installations.

Although Appendix G takes its cues from part 5.6 of AS 2870, there are additional details that will take the industry several steps forward in risk-proofing the drainage system. Plumbers should be aware of these, as there are additional steps that they may not have installed in the past. These include:



**Multipurpose. Multiple use.
Made for duration.**

Flygt

Ready Series Submersible Pumps



*DURABLE, LIGHTWEIGHT
AND EASILY SERVICABLE.*

Whether it's for construction or industrial site, manholes or emergency situations, you'll be ready for on the spot dewatering - time and time again.

- Compact and Lightweight - easy to carry, install and service.
- European Build - Manufactured in Sweden, world renowned engineering quality.

Contact your local plumbing supplies store and ask about the Flygt pump range available from Brown Brothers Engineers.

 **Brown Brothers
Engineers
Australia Pty Ltd**
www.brownbros.com.au

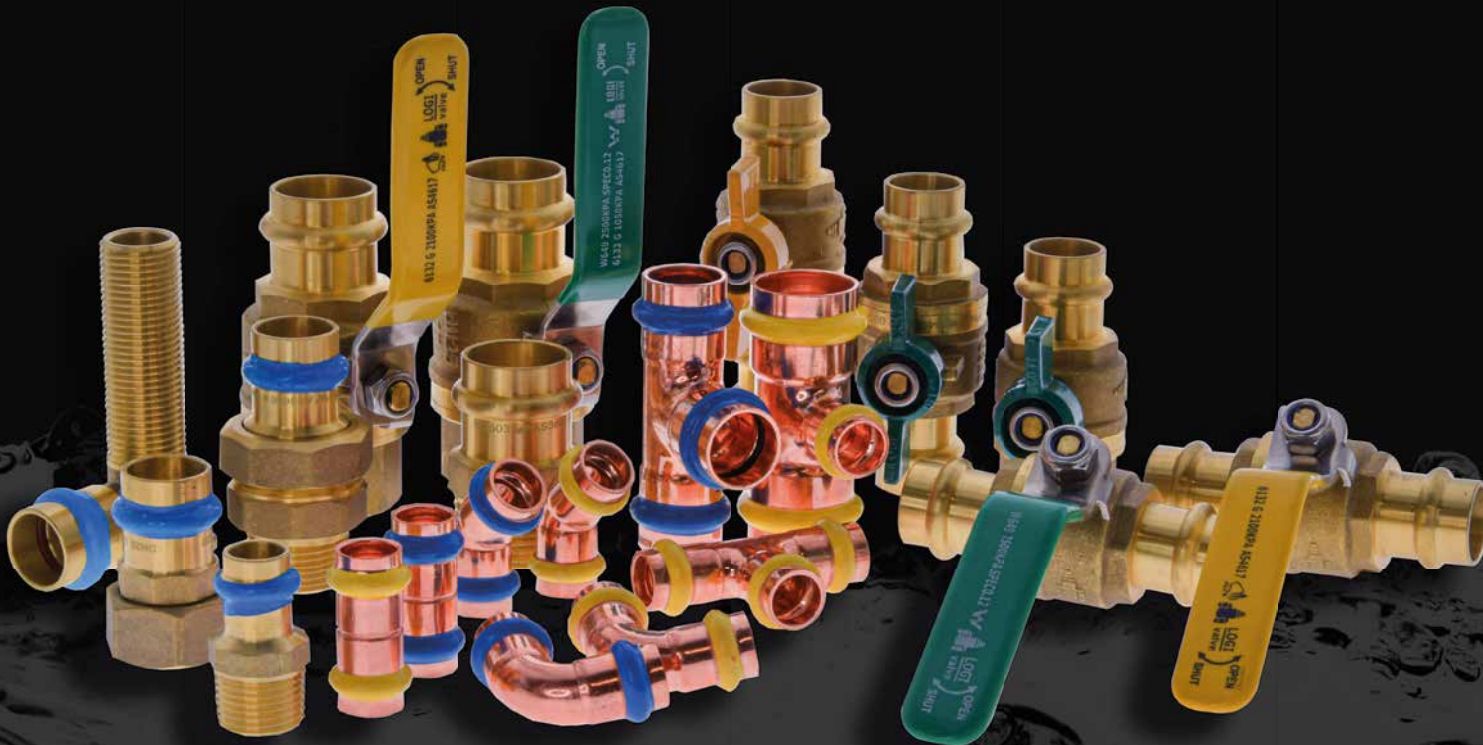
DELIVERING PUMPING SOLUTIONS

METPRESS™

SUPERIOR PRESSFIT SYSTEM

WORK SMART, GET IT RIGHT THE FIRST TIME.

Austworld's Metpress is a complete pressfit system which eliminates the requirement to solder, this is fast becoming the most popular and preferred solution for joining copper.



Quality

25 year warranty.



Leak Indicator

A two step safety system helps identify unpressed connections via an indication ring that peels away when crimped. Also any unpressed fittings are guaranteed to leak during the commissioning pressure test.



Certification

AS3688-2016.

austworld.com.au

1300 780 430



AUSTRALIA'S LEADING WHOLESALER OF PLUMBING SOLUTIONS

QUEENSLAND VICTORIA SOUTH AUSTRALIA NEW SOUTH WALES WESTERN AUSTRALIA TASMANIA

CONTACTLESS SMS PAYMENTS: AN ESSENTIAL TOOL IN YOUR TOOLBOX

Technologies for processing funds are improving all the time, including platforms of great relevance to plumbers and other tradespeople. We asked **Dave Scheine** from Podium to explain the basics of Contactless SMS Payments.

Few issues are more important for plumbers than late payment. Australian payment times are among the slowest in the world according to the Australian Small Business and Family Enterprise Ombudsman, while CreditorWatch data reveals that late payment times in the construction industry have reached record highs during the pandemic.

However, just as new technology allows plumbers to improve their craft, so it also allows them to improve their business too. By creating a seamless and convenient process, contactless SMS invoices have the potential to help plumbers turn late payments into fast, convenient and secure payments. But why are contactless payments booming today? How do they streamline a formerly stressful and time-consuming process? And how can plumbers seamlessly revolutionise their payment processes?

WHY SMS PAYMENTS?

Cash payments have been declining steadily for a decade, overtaken first by card and now by contactless payments. SMS-based contactless payments are expected to grow from almost AUD\$15b in global transactions to over \$25bn from 2020-2025. In the wake of the pandemic, consumers are eager for safer and more convenient methods. Research from Podium shows that 85% of Aussies prioritise businesses that offer pandemic-friendly services like contactless payments. What's more, 53% would consider seeking a competitor if a local business didn't offer this.

This is a huge opportunity for tradespeople. Traditionally speaking, tradespeople would spend one day at the end of a week – or even the end of

the month – consulting timesheets and receipts before issuing paper or PDF invoices by post or email. Not only is this a time-consuming, inaccurate, and inefficient process, but it's very easy for a customer or subcontractor to forget to pay, despite their best intentions, and for you to forget to chase them. Today, however, millions of us live and work on our smartphones. Text messages have a 98% open rate and a 209% higher response rate than email and phone, making them an incredibly effective channel to send payment links.

HOW DOES IT WORK?

Through SMS invoices, it's incredibly easy to streamline the formerly time-consuming, admin-heavy and inaccurate process of formulating and chasing invoices. For example, once you've completed a new toilet installation, compile your labour, materials and any plant hire on an e-invoice. When the invoice is ready, it is sent as an SMS directly with a one-click payment link to a customer's smartphone. Instead of them logging into a website, banking app or sharing card details over the phone, the link enables them to complete transactions quickly with credit, debit, Google Pay or Apple Pay – all on a device that's likely already in their hand. Your customers will never have to share personal data like account details, so they won't be susceptible to any unexpected risks.

Through the same process, plumbers can also send estimates and quotes via SMS before a project. If the quote is accepted, it can be automatically sent as an invoice when the job is complete. Through Podium, for example, you can also see the status of all your payments, invoices and transactions in one place. Not only does it help you stay on top of



SMS payments are easy to manage, allowing for instant payment and seamless accounting.

every transaction, but it also enables you to forecast cashflow, automate follow-up reminders for any outstanding payments, and even integrate payments with your accounting software to help when it comes to tax time.

GOOD HABITS

As with any new procedure or technology, optimising the transition requires an initial commitment. Rather than setting aside time to compile invoices weekly or monthly, compile them as you work. If you have a team, they'll need to be taught to develop good habits too. ■

Dave Scheine is the Australian Country Manager at Podium, a customer messaging and payments platform for local business. He has over 15 years' experience. Visit www.podium.com.au



CO2 HEAT PUMP THE FUTURE HAS ARRIVED

INTERACTIVE TECHNOLOGY PUTS THE POWER IN YOUR CUSTOMER'S HANDS

**SUPER EFFICIENT, 4 OPERATION MODES ENSURE THAT YOUR
HOT WATER IS TAILORED TO YOUR CUSTOMER'S NEEDS...**

SMART CONTROL ENSURES ENERGY SAVINGS

- WHISPER QUIET
- FROST TOLERANT
- NATURAL REFRIGERANT
- SUPER EFFICIENT, LOW ENERGY DRAW
- UP TO \$3000 IN REBATES*



**START OFFERING YOUR CUSTOMERS THE
SMARTER CHOICE, CONTACT RECLAIM TODAY.**

T: 1300 383 815 E: hello@reclaimenergy.com.au
RECLAIMENERGY.COM.AU

 facebook.com/CO2HeatPump  instagram.com/reclaimenergy

* Based on claiming the STCs, Victorian energy efficiency certificates (VEECs) and Solar Vic Hot Water rebate. Eligibility criteria applies, all rebates are paid subject to the terms and conditions of the agency managing those programmes.



RECLAIM
ENERGY

ARGENT SMART MIRRORS

The inclusion of a smart mirror can easily transform a subtle smart bathroom into a state-of-the-art sanctuary. How? Similar to the smart toilet, smart mirrors offer style, convenience and a highly personalised experience.

Available in two ranges, Argent Smart Mirrors deliver round and rectangular silhouettes and numerous features based on desired use.

At the top of the range is the Argent Mondrian 1400 Smart Mirror, which offers a highly personalised and luxurious alternative to the original mirror. The Mondrian 1400 enables users to achieve perfect lighting with tricoloured options including warm, natural, and cool.

Switching between options is effortless and means you can have the ideal lighting for every instance.

In addition to standard smart features, including an integrated 3x magnifying mirror and built-in demister, the Mondrian 1400 allows users to connect any smart device via Bluetooth to its hidden speakers, so you can stay connected even in the shower.

Smart mirrors are hard-wired into the wall and require an electrician to install them. They contain a transformer inside to convert power and are low voltage, so no extra switch is required in the electrical box. Also, because the buttons are integrated into the screen, there's no need for a separate switch on the wall to control the features of the mirror.



Argent Australia
www.argentaust.com.au

CONTEMPORARY TOILET FOR THE COLOURED BATHROOM

As colour continues to dominate in our homes, European innovators Villeroy & Boch have released the O.novo Style back-to-wall [BTW] toilet as a neutral addition to your bathroom. This contemporary BTW toilet features a white flush button to complement coloured tapware, basins, showers, and accessories. Boasting Villeroy & Boch's powerful and hygienic DirectFlush Technology, the O.novo Style BTW combines premium design features at an affordable price point. Ideal for all bathroom spaces, the O.novo Style BTW features standard height and has only a 600mm projection from the wall.



Argent Australia
www.argentaust.com.au



HYGIENE EXPERTS SCHELL MAKE BATHROOMS SAFER

Hands-free experts Schell continue to campaign for safer commercial bathrooms with their latest addition to the market, the Modus II Wall Mounted Touchless Tap. Featuring a strong, elliptical design and ultra-hygienic functions like 24-hour stagnation flush and cleaning mode, the Modus II provides a seamless handwashing experience courtesy of infrared sensors.

Battery-operated for easy installation, the durable anti-vandal spout is securely mounted to the wall, making it the ideal application for schools, hospitals, aged care facilities and public bathrooms.

Argent Australia
www.argentaust.com.au

VILLEROY & BOCH: CRAFTSMANSHIP IN THE KITCHEN

European powerhouse Villeroy & Boch bring expert craftsmanship to the kitchen with their latest innovation – the Vita Kitchen Mixer Pull-Out-Spray. Showcasing subtle proportions and premium functionality, the Vita Kitchen Mixer is the ultimate addition to single and double sinks. Featuring a 70cm retractable hose, new ball-joint technology, and 360-degree swivel capability, the Vita Kitchen Mixer enables freedom of movement.

Designed with flexible tails for easy installation and two spray functions for water efficiency. Available in five finishes: Matte Black, Brushed Gold, Brushed Nickel, Gun Metal [pictured] and Classic Chrome.



Argent Australia
www.argentaust.com.au

studor Are YOU Under Pressure?



New build projects today are under increased pressure for cost savings, space savings, improved insulation, better sustainability, more distinctive styling, as well as increased innovation. The Studor System, incorporating the unique P.A.P.A. (Positive Air Pressure Attenuator) and Studor AAVs (Air Admittance Valves) can help make this happen.

The Studor System:

- Reduces material and labour costs for substantial savings and sustainability.
- Decreases duct sizes for better space utilisation.
- Reduces roof penetrations for improved aesthetics and insulation.
- Simplifies system design, allowing greater design freedom.
- Actively balances negative and positive pressures in the drainage system.
- Provides a "Lifetime of System Warranty" for peace of mind.

Studor – the World's Leading Specialist Dedicated to Drainage Ventilation

Take the revolutionary, yet proven, approach to multi-storey stack drainage with the Studor System – approved worldwide for over a decade!

ELIMINATE THE PRESSURE

Talk to the Studor team and benefit from our years of experience and expertise. Ask about how we can provide design assistance or request copies of our cost comparisons and case studies.



ATS 5200.463
WM-20006

AS/NZS 4936
WM-22085/WM-22122/WMKT22193

STUDOR – dedicated to helping you achieve more with less

STUDOR AUSTRALIA PTY LTD

Tel: 1300 551 519 | Fax: (02) 9687 8763 | Email: australia@studor.net.au
NSW/ACT/QLD/WA/NZ: 0410 596 337 | VIC/TAS/SA/NT: 0407 855 458

THE TOP SIX EMPLOYMENT LAW MYTHS IN THE TRADES

There are some still commonly stated myths in the employment law area among trades. Paul Cott myth busts the six most common ones.

1 You have to always give a warning to an employee before dismissing that employee. This is a very common misconception and in fact even some in the legal profession get it wrong so little wonder that those in the small trades industry get it wrong.

In a case of serious misconduct [the Fair Work regulations give by way of non-exhaustive examples of serious misconduct theft, fraud, drunkenness and assault] where the conduct of the employee is so serious that the continuation of the employment relationship is so untenable it cannot continue, no warnings prior are required.

Another more common example of serious misconduct is where the employee refuses to carry out a lawful and reasonable instruction, where to refuse is inconsistent with the employment continuing. A topical example may be where the employer directs say an employee to be COVID vaccinated where that employee deals with the public all the time and refuses to be vaccinated.

Here though, there commonly is a warning of the possibility of the ending of the employment, and or some consultation about the directive.

2 Casual employees of a long duration [say 12 months or more employment] have an automatic right to be converted to permanent [whether full or part time] employment. The law allows an employee to request conversion to permanent staff [but not for small business, defined as less than 15 employees], but the employer can refuse on reasonable business grounds.

In a small business scenario, the

employee can request conversion however the employer can refuse and even though not required to give reasons for the refusal, should do so.

3 In the unfair dismissal context, if an employee lodges an unfair dismissal application and it is found the dismissal to be unfair, the employee will be awarded all of their resultant financial losses, and the

to justify a termination of employment, can reduce the amount of compensation awarded as the commission says that the employee in a relatively small way, contributed to the termination.

4 If an employer wishes to give no more shifts to a casual employee [even a long-term casual] then there is a belief among many employers that they have to formally end the employment relationship.

Whilst this is a good practice in a sense in that it creates certainty for both employer and employee, and it is borne out of fairness for the employee so that they know the status of their employment and can then find another job, it is a somewhat risky thing to do for an employer. This is because what the employee may do [and it has happened a lot in my experience] is lodge an unfair dismissal claim as they say they have been unfairly dismissed.

Now the right for a casual employee to lodge an unfair dismissal claim is restricted in the sense that they have to be a long-term casual with an expectation of ongoing employment, but once the claim is lodged, the employer has to still deal with it. It is often best therefore, if this risk is to be avoided, if to simply just offer the employee no more shifts.

That is the nature of casual employment, that of one where both employer and employee can offer no more shifts [the employer] and the employer does not have an obligation to accept any shifts so offered.

5 Though it may be somewhat surprising how often this one comes up, often an employee



alleged misconduct which resulted in the dismissal will not reduce compensation awarded.

This is untrue as there is an element of contributory negligence here as the employee can be found to have contributed to the termination, despite the dismissal being unfair in the sense of it being harsh.

That is, any misconduct by the employee, though not classed as serious enough by the Fair Work Commission



Rheem EZiSET®. Controls hot water with the reliability of WiFi technology.

EZi for plumbers to install.

Suitable for most* Rheem continuous flow water heaters.

EZi to set up.

Uses existing home WiFi network.

EZi to control.

Users control water temperature and level from their mobile phone. No remote controls needed.

EZi to trust.

Backed by Australia's number 1 in hot water.

For more on the Rheem EZiSET visit: rheem.com.au

COMES ON STEADY, HOT AND STRONG.

INSTALL A



AUSTRALIA'S NO. 1

Suitable for Rheem 12-26L models (876812, 876T16, 876820, 876T26) manufactured after March 2018, and Rheem 27L models (866627 and 876627). Not suitable for models with 60°C preset. Check that Rheem EZiSET® is suitable for your user's home before you purchase – refer to the Rheem EZiSET® brochure or rheem.com.au.

[in particular] will say that as there is no written employment contract, that there are no contractual terms and conditions and to none of the rights and entitlements and obligations of the employment relationship apply. This myth comes up sometimes outside the employment context, including in the trades industry but is simply untrue.

Whilst it is in nearly every case preferable that a written employment contract does exist, for the sake of certainty if ever an issue or question or dispute was to arise, it is by no means illegal for no written employment to exist and in no way shape or form does it mean any of the terms and conditions implied by the law in any event, do not apply.

6 This is another very topical area. That is, that it is illegal or unlawful discrimination to deny people certain rights (such as entry to premises and or the workplace) on the

basis that a person won't be vaccinated against COVID. That is, without a medical exemption which should be in writing to have any status or any weight.

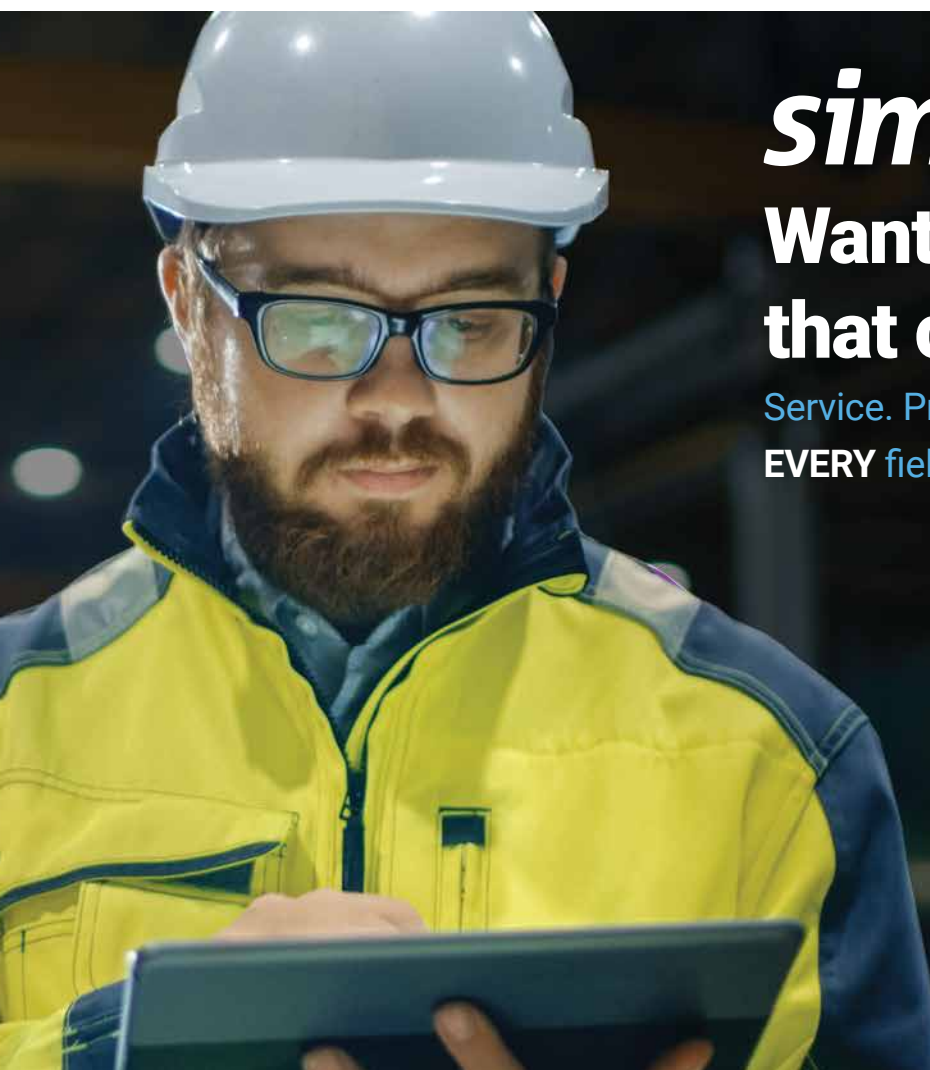
Vaccine refusal is not a protected attribute under any workplace or anti-discrimination legislation, case law or otherwise [yet].

A case where an employee recently won a case in the area [CFMMEU and Matthew Howard v Mt Arthur Coal Pty Ltd T/A Mt Arthur Coal [2021] FWCFB 6059] of vaccine mandates focused not on the unlawful discrimination issue per se but more on the lack of consultation by BHP with the affected employee. Readers should not glean from this case that vaccine mandated are unlawful or unreasonable and will be struck down in other cases. The finding by the Full Bench of the Fair Work Commission is confined to the particular facts and the Commission even said among its other reasons, that vaccine mandates are generally reasonable and are in

most cases directed to a logical and understandable basis.

So, there you have it, six commonly heard of employment law myths in the trades (and indeed other industries too) industry. The lesson is that talk over or around the water cooler so to speak about issues such as these is very often best ignored. The number of times I've had a client say that someone told me such and such, but that what is being said is untrue is quite astounding. It is best to go to expert advice if such issues arise and there is always help available, it is often just a matter of searching [or dare we say it, Google searching]. ■

Paul Cott LLB (Hons), Grad. Dip. Legal Practice, LL.M., is a Principal Lawyer with Law on Lydiard, Victoria, focusing on building and construction litigation. Visit www.lawonlydiard.com.au



simPRO

Want one software that can do it all?

Service. Project. Maintenance.

EVERY field service workflow covered.



simprogroup.com
1300 139 467



Who said plumbing isn't a rewarding career?

Rheem Rewards program

- For licensed plumbers.
- It's free to join.
- Claim on most Rheem, Vulcan and AquaMAX products*.
- Choose from over 9,500 rewards, products, gift vouchers and services.

Join now at rheemrewards.com.au

COMES ON STEADY, HOT AND STRONG.

INSTALL A



AUSTRALIA'S NO. 1

*Conditions apply. See website for details.

ELECTRIC WATERPIPES

Metallic waterpipes can become 'live' through various methods. There is a low probability of an incident, writes **Chris Halliday**, but electrocution is a genuine risk.

Most 'tingle' incidents from waterpipes go unreported, but they serve as a warning for higher-consequence incidents. Smarter water authorities and plumbers are managing this issue, but many aren't. This paper looks at the risks, as well as how the risks occur, and the options to manage the hazard.

THE RISK

The likelihood of an electrical incident while working on metallic waterpipes is somewhere between 'likely' and 'unlikely', but with catastrophic consequences. This leaves the risk between high and extreme, and so the hazard must be managed.

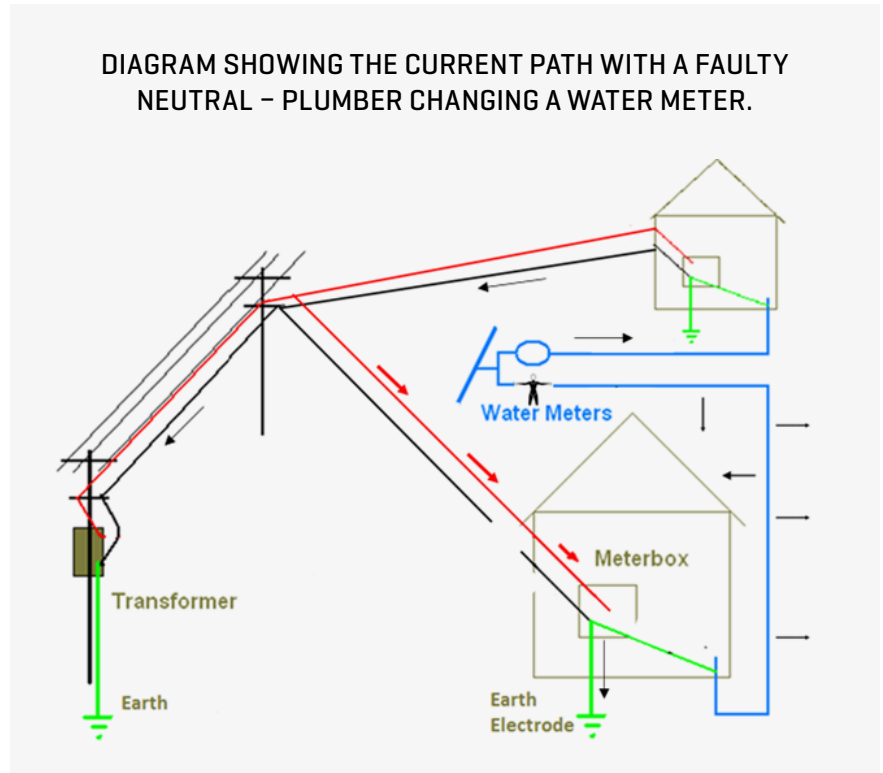
In plumbing/water authority situations, AC voltages as low as 3 volts can cause a person to 'lock-on' to the waterpipe and not be able to let go, and voltages as low as 24 volts can cause a person's heart to go into ventricular fibrillation.

THE MECHANISM

There are two main mechanisms for those working on metallic waterpipes to be killed.

The first, and most common mechanism, is because of a faulty neutral connection on the incoming electrical service. This causes the return current from the electrical installation to travel through the ground and via metallic waterpipes back to the supply transformer. Work at one electricity supply authority some years ago identified around 2% of older installations had a faulty neutral connection.

The second mechanism is where an electrical fault occurs, often in



an appliance or electrical wiring, and 'livens' the electrical earthing system and metallic waterpipes. Generally, the electrical protection equipment will

operate to remove the fault, but this is not always the case. Porcelain fuses, which are common in older properties, may be shorted with wire instead of fuse wire. Circuit breakers and safety switches can fail or fail to operate due to limited fault current.

Other mechanisms are equally noteworthy.

A reverse connection on the incoming electrical service wire coming into a property can 'liven' up the metallic waterpipes. This is rare but it does

happen. Normally, these are generally found and rectified quickly but in one case the reverse connection had been in place for 16 years.

Another mechanism, again a rare occurrence, is where the active conductor in the incoming electrical service wire into a property shorts to the neutral conductor, and burns the neutral off the supply transformer. This then makes the metallic waterpipes 'live'.

Lightning also presents a significant hazard to anyone outside in a storm, but especially for those working on metallic waterpipes. Lightning should never be underestimated and a direct strike with waterpipes is not necessary to kill or injure. Waterpipes can be 'livened' through the ground and can even be 'livened' through the air by what is called induction and/or capacitive coupling. ➤

Lightning also presents a significant hazard to anyone outside in a storm, but especially for those working on metallic waterpipes.

**THE BEST WAY TO HANGA,
IS WITH A**

**DOUBLE
BANGA!**

**ONE CLIP SUITS
16 & 20MM PEX**



**Double Banga
Tek Screw**



**Double Banga
Mas Nail**



**Double Banga
Twist Nail**



www.plastec.com.au

Other electrical hazards include using faulty appliances and leads, digging up underground electrical cables or sticking metallic items into or near overhead mains. These types of incidents can also result in the electrocution of plumbers and water authority technicians.

DEATHS & INJURIES

The following are some examples of the tragic circumstances that can occur if the 'live' waterpipe hazard isn't effectively managed:

The last water authority technician that was electrocuted (the injury or killing of someone by electric shock) that I am aware of occurred in Sydney in 2005. Allegedly, he was repairing a water service at a residential property using a bridging lead, but it wasn't connected one end or had been knocked off during work.

A plumber was electrocuted in Yennora in Sydney's west in 2009 who had been cutting a waterpipe without a bridging conductor or any other controls.

An apprentice was electrocuted in 2008 when he tried to rescue his boss, who had been cutting a metallic waterpipe. The boss survived but not the apprentice.

Denishar Woods was 11 years old when she touched a 'live' metallic tap in 2018. Her heart went into ventricular fibrillation, and she suffered permanent and debilitating brain damage. Whilst Denishar isn't a plumber or water authority technician, the same thing could have happened to these tradies.

There are many examples of deaths and severe injuries from faulty appliances and metallic objects.

CONTRIBUTING FACTOR & CAUSE

Prior to a change in the electrical 'Wiring Rules' in 1979, electrical installations generally used the metallic waterpipes as the earth electrode. From 1979 onwards, an earth electrode driven in the ground has been used to provide a return path for the neutral current should a neutral connection burn off. Additionally, metallic waterpipes have still been required to



A water meter being changed safely using appropriate controls.

be connected to the electrical earthing system.

If replacing the metallic water service into a property, then an electrician will be needed to install an earth electrode if one is not already installed.

CONTROL MEASURES

Control measures include:

- have the electrical installation checked by a competent electrician or electrical inspector;
- use non-contact voltage testers for an initial voltage test;
- voltage monitors connected to the metallic waterpipes for the duration of the work;
- screw-up bridging conductors;
- wear insulated gloves for the duration of the job;
- turn off all electrical load;
- stop work on metallic waterpipes during storms;
- dial before digging;
- look up and live; and
- use tested and tagged electrical appliances.

ADDITIONALLY

Policies, procedures, and safe work method statements will be needed to ensure the safety of workers.

Training in the procedures and management of the electrical hazard will be essential.

CONCLUSIONS

Working on metallic waterpipes can result in catastrophic incidents if the electrical hazard hasn't been managed properly. Additionally, anyone receiving an electric shock, no matter how small, should seek medical attention.

Equipment, procedures and training are also important in managing the hazard. Companies like PowerLogic can help in this regard. ■

Chris Halliday MEElecPowEng, GradDipMgt, AdvDipOHS, CertTAA is Director of Electrical Consulting and Training Pty Ltd, trading as PowerLogic, in NSW. Visit www.powerlogic.com.au



Stop Drainage Odours, Pests, Gases & Pathogens. Choose Green Drain.™

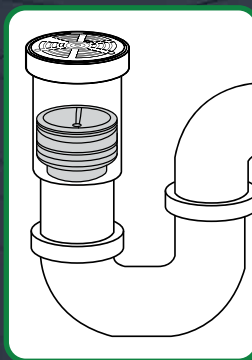
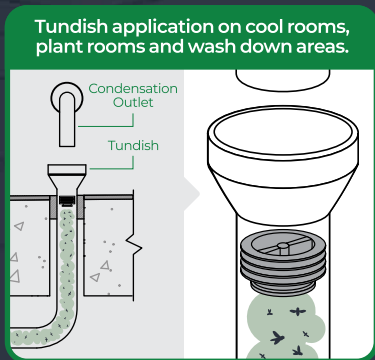
- Easy to install and remove.
Available in various sizes to make retro fitting easy.
- Saves time, water, costs & energy.
- No need to use harsh chemicals.



NEW
GD3/35H
 80mm-90mm
GD35/4H
 90mm-100mm



- Prevents odours from coming up your drain
- Protects from dangerous sewer gases
- Stops pests from entering your premises
- Limits minor sewer backups
- Prevents spread of viruses and bacteria
- Allows high flow of water down drain



Model No.	Pipe Size	Height	Flow Rate
GD1.5	36mm - 44mm	35mm	22.7LPM
GD2	48mm - 58mm	35mm	35LPM
GD2.5	55mm - 65mm	35mm	67.6LPM
GD3	75mm - 85mm	50mm	128.7LPM
GD3/35H	80mm - 90mm	50mm	128.7LPM
GD3.5	89mm - 94mm	50mm	193LPM
GD35/4H	90mm - 100mm	50mm	193LPM
GD4	102mm - 110mm	50mm	276.3LPM
GD5	120mm - 135mm	40mm	315LPM

G Green Drain™
 Asia Pacific

www.greendrains.com.au

+61 2 9099 4442 sales@greendrains.com.au

The Self Sealing Membrane is approved by ABCB/IAPMO (Watermark) **WMTS 522:2021** to be used as a **SUPPLEMENTARY PROTECTIVE DEVICE**. Complies with ASSE 1072-2007. ICC-ES Certified to be used as an alternative to a trap primer.

Scan the QR code to view our Green Drain Demo →



Available at:



AVOIDING THE PITFALLS OF CLOSED-CIRCUIT HEATING & COOLING SYSTEMS

In some areas of Australia, closed-circuit heating and cooling systems have been used for several years. However, these systems can have backflow pitfalls associated with Automatic Refill Units. **Peter Damaso**, our regular columnist from the Backflow Prevention Association of Australia [BPAA], in consultation with fellow member **Andrew Meade**, explain why proper backflow protection is so important.

When installing an Automatic Refill Unit correctly they are an ideal backflow protection device. However, when installed incorrectly, there is every possibility that they can become a direct cross-connection with the possibility of contaminating the potable water supply [drinking water]. How is that possible? And what measures should you take as a professional plumber?

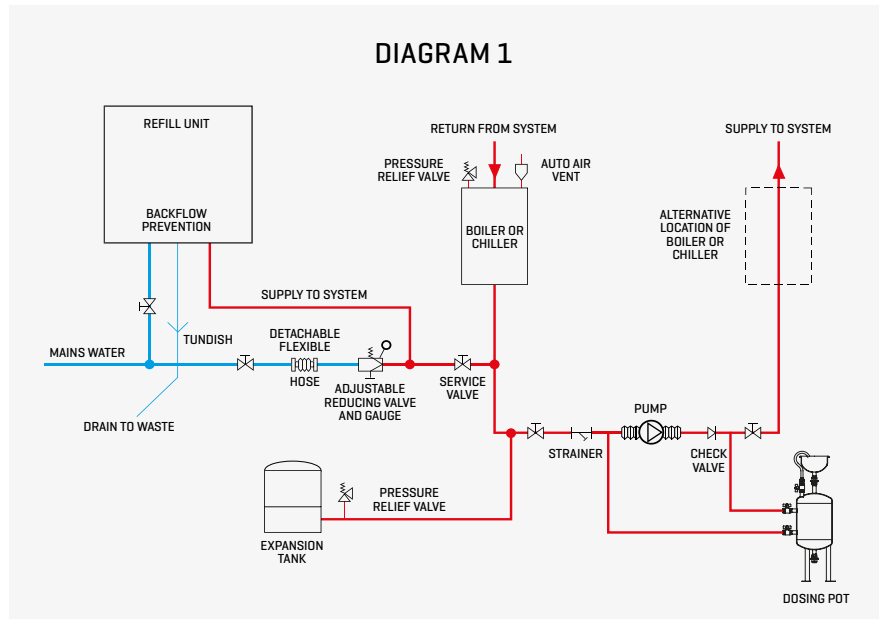
THE AUTOMATIC REFILL UNIT

These refill units generally consist of a non-corrosive supply tank [usually stainless steel or polyethylene], a fill valve for the break tank, pressure pump and pressure switch. Other additional pieces of equipment used in these systems are the Expansion Tanks and Chemical Stainless Steel Dosing Pots. Chemical additives are added via the dosing pot to avoid corrosion of pipes and components. The dosing pot is a small pressure vessel, which is installed upon a side-stream bypass that allows it to be isolated.

Once it is filled with the appropriate chemical, it is sealed from the atmosphere and then it is opened to the mechanical or hydraulic circuit. The chemical additive is then pumped



Image 1: The flexible connection is the 'quick-fill' that should be disconnected and capped once the system is full.



around the system with the aid of the existing circulating pump.

Once the system is primed, the boiler or chiller system then relies on the Automatic Refill Unit for any additional water that may be required. [See Diagram 1.]

WHAT CAN GO WRONG?

In most cases a 'quick-fill' connection is installed in the pipework so that mains water can be initially used to fill the system upon installation, or if the system must be drained down. This is usually done through a flexible hose. Once the system is full the hose used for the initial fill must be disconnected. It is this type of connection that potentially becomes the direct cross-connection, as this hose is sometimes left connected, and the isolation valve has been left on, as can be seen in Images 1 and 2.

In both instances, the chemical used to treat the chiller and boiler systems could potentially end up back in the drinking water system. Although the ball valve is in the closed position in this picture, it can easily be turned on and left on, or over time it could simply leak.

To overcome any potential backflow situation occurring if the 'quick-fill' is to be plumbed in, either with a flexible hose or with copper, then the appropriate additional backflow device **MUST** be installed on this line.

Some systems have expansion tanks that contain a rubber membrane that is not approved for drinking water. Should the system be plumbed via the 'quick-fill' and a backflow situation were to occur, then the water that has been in contact with the non-approved rubber could leech back into the drinking water supply, thus being an additional source of contamination. [See Images 3 and 4.] ▶



PASSIVE FIRE SYSTEMS THAT WORK

SNAP's testing is **independent**; we do not test at our own facilities. Reports are available on our website.

What is tested is what we sell



UL100FWS



SUPPORT
AUSTRALIAN
INDUSTRY

Ultra-low profile 67mm high floor waste collar solution

Ideal for casting-in pipework to significantly reduce costs:

- Increases the speed of installation
- Eliminates additional penetrations
- Reduces under slab clipping and lagging
- Increases head height below

Perfect for:

- Laundry and bathroom installations
- Balcony outlets
- Water meter cupboard drains

Extremely versatile:

- Any number of branches of the 4-way riser can be used as Floor Wastes or Stacks in any combination
- The central pipework can be either a Floor Waste or Stack



Visit our website for your local distributor

Tested to: AS1530.4 AS4072.1

1300 76 46 26

www.snapcollars.com.au

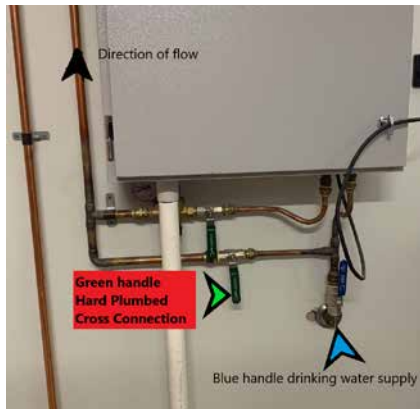


Image 2: In this picture the blue ball valve is the main water supply, the bottom green ball valve is the 'quick-fill' connection which has been incorrectly hard-plumbed with copper pipe.

Australian Standards AS3500.1-2021 *Water Services* and AS2845.2-2010 Part 2 specify that a break tank shall have a minimum of 40 mm diameter overflow pipe. [See Image 5.]

Some Automatic Refill Units do not have the correct overflow pipe, with some being as small as 20 mm.

Additionally, when choosing the Automatic Refill unit, one should look for the WaterMark symbol. It has been reported that in some of the literature that comes with the units and also stickers found on some of the Refill units, the manufacturer is promoting the fact that there is no additional yearly testing required, as the break tank has an Integral Air Gap inside the tank.



Image 3.



Image 4. Only EPDM rubber is approved to be in contact with drinking water.

This is correct ONLY IN LOW-HAZARD applications. These systems, since they contain chemicals to stop corrosion, are a HIGH-RISK installation and thus MUST have either a RPZD or a Registered Air Gap [RAG] or a Registered Break Tank [RBT].

AS3500 Section 4.4.6 states in part that Registered Air Gaps and registered break tanks shall only be used with a maintenance program for device registration and test certification.

The BPAA continues to use its resources to educate its members and the general public about the difference between an Air Gap [AG] and a Registered Air Gap [RAG], and a Break Tank [BT] and a Registered Break Tank [RBT].

The 'Registered' part of the Air Gap and Break Tank is a record of information that is recorded in a list or database for the purpose of testing, and this is to be done on an annual basis. If an Air Gap is registered, a sign or a compliance plate should be attached at or near the Registered Air Gap, and the same with the Registered Break Tanks with the plate showing inlet orifice size, overflow size, spill level and Air Gap dimensions. Failure to have the correct backflow device installed and tested annually may affect the client's public liability insurance, should there be an incident.

WHAT CAN THE PROFESSIONAL PLUMBER DO?

When installing these types of systems, it is always vital to remember these important steps.

1. Always make sure that the system that you are installing carries the Watermark Symbol.
2. Always following the Australian Standards and the Plumbing Code of Australia [PCA].
3. These types of installations that add chemicals are a HIGH RISK, hence they must have either a RPZD or a Registered Air Gap or Registered Break Tank.
4. As a HIGH HAZARD Risk installation remember that a RPZD MUST also be installed at the water meter as a Containment device.
5. Check the type of Expansion Tank membrane.



Image 5.

6. Remember that the Backflow Prevention Association of Australia [BPAA] is here to help members with practical advice.

The BPAA is indebted to its member Andrew Meade for providing the research into this article and wish to thank him for his time and effort.

Footnotes:

In relation to AS/NZS 3500.1: 2021 several backflow prevention provisions, which were considered matters of public policy, have been elevated to PCA Part B5 Cross Connection Control. To remove duplication between PCA 2019 and AS/NZS 3500.1, the provisions relating to cross-connection hazards and the corresponding hazard rating have been removed. This also avoids inconsistencies between the cross-connection hazards and the corresponding hazard rating in AS/NZS 3500.1: 2021 and in NZBC Acceptable Solution G12/AS1. Consequently, Appendix F has been deleted and all remaining backflow provisions have been consolidated in Section 4. NCC 2022 and Volume 3, which is the PCA, are now expected to be adopted by states and territories from September 1, 2022.

ABOUT PETER

Peter Damaso has been a licensed plumber since 1985 and has been an accredited backflow specialist since 1999. He has sat on the NSW State Committee of the Backflow Prevention Association of Australia Inc. since 2015 and has been an Executive Committee Member since 2017. Peter is now the Vice-President of the BPAA. Peter runs his own backflow plumbing business and has extensive knowledge of the backflow industry. Visit www.bpaa.org.au to find out how the BPAA can help you understand cross-connection control and backflow prevention.



INTRODUCING OUR **NEW** PRO1000A!

Most Powerful Flush System - Adjustable up to 9/4.5L

PRO Cistern with Link & Seat

INSTALL WITH CONFIDENCE



PRO1000A

- Low Level Flush Pipe Included
- 4.5/3L Dual Flush Technology
- Simple Flush Volume Conversion to 6/3L or 9/4.5L
- UV Resistant - Certified
- Plastic Cistern with Bottom Inlet
- Saves Water

EQUIPPED WITH FLUIDMASTER TECHNOLOGY



Inlet Valve
PRO45-AU



Outlet Valve
560AU02



SPECIFICATIONS

SPECIFICATIONS			Case Pack		
SKU	Case Qty	Product Dimensions H/W/D (Millimeters)	Case Dimensions H/W/D (Millimeters)	Case Weight (Kgs)	EAN
PRO1000A-004-P1	1	391 x 420 x 133	495.30 x 430.23 x 204.80	5	9354172000179

www.Fluidmaster.com.au



Fluidmaster Australia Holdings Pty Ltd.
5B/100 New Street, Ringwood, Victoria 3134 Australia
+61 (03) 8870 2555 | Toll Free: 1 800 931 166
Email: salesau@fluidmaster.com

© 2020 Fluidmaster, Inc.
© Registered trademark of Fluidmaster, Inc.
FM91699, GRev1, 11/2020

ALL IS WELL WITH WELS

The Water Efficiency Labelling and Standards (WELS) scheme, which became mandatory in 2007, has gone on to set water efficiency benchmarks that are the envy of the world. Plumbing Test Consultant Terry Nguyen from PROVE Standards & Engineering comments.

The Water Efficiency Labelling and Standards (WELS) scheme began in Australia during the height of the drought in the mid 2000s. Its inception was only a smaller part of a larger government initiative to try and conserve Australia's reducing water storage. Reducing the water consumption from fixtures was seen as an easy way to target large savings. The Australian initiative to curb water usage from fixtures started small, but perhaps has gone a lot further than what we had first anticipated.

The WELS scheme is Australia's Water Efficiency Labelling and Standards scheme, and it was introduced to limit the amount of water consumed in buildings through fixtures and appliances that can perform the same duties with less water. It has been a mandatory part of Australia's building construction industry for more than 15 years now, which exceeds the duration of a lot of other similar schemes worldwide. In fact, a lot of the world witnessed the emergence of this revolutionary scheme and swiftly looked to introduce something similar, understanding its benefits.

The WELS scheme, though, had mixed responses when it first was introduced here in Australia. Many licensed practitioners and consumers alike resisted the initiative with a large amount of displeasure. Homeowners used to ample flow through high-flowing showers were suddenly met with products that were roughly half to a third of their traditional flow rates. Or toilets that easily removed waste now had to use far less water. Plumbers (probably unfairly) attracted a lot of the

blame for the installation of the new 'updated' products. The opposition to the introduction of the WELS scheme saw a large percentage of licensed plumbers removing flow controllers or adjusting products in anticipation of being called back in their own time to 'fix' the shower, tap, or toilet.

EARLY PUSH-BACK

The real reason for the initial push-back from industry though, in hindsight, could be largely to do with the products that were available back when WELS began. Most of these products became outdated overnight, having to achieve an intended outcome using water volumes that they were never designed for. Poor product performance using antiquated designs against new standards was likely the major contributor to the widespread dissatisfaction.

And whilst this may have been understandably true, in the background engineers had already begun designing new products to align with the new efficiency targets.

In engineering terms, the 'efficiency' of a product is often incorrectly associated with its overall consumption, which is not necessarily true. Something delivering water at 4L/min instead of 10L/min does not necessarily make it more efficient. Efficiency

refers to how well something [in this case water] achieves or completes a task. Any consumption that has been used to achieve a non-result, or which fails to achieve a desired target, can be considered a waste. So, a toilet using 4.5 litres to *almost* clear a bowl is not more efficient than a toilet that can use 6 litres to successfully clear all contents.

For this reason products these days are engineered differently to their older counterparts, based on a knowledge of the available water consumption. The key is understanding the end goal of what must be achieved. New product designs are only now achieving efficiency in the way that the WELS scheme had originally intended.

ENGINEERS MEET CHALLENGES

Australian Standards test methods have performance parameters defining comfort and effectiveness, whilst observing maximum water allowance. Engineers have risen to the challenge and are creating designs understanding what water consumption is permitted, as opposed to previous years where older designs were simply forced to comply with new legislation. If you knew you only were allowed 7L/min, would you design a showerhead that only reaches peak performance above 15L/min?

Shower heads are delivering effective ablutionary capabilities using low water consumption that was previously thought impossible. Taps are effectively washing hands using outlet aerators and spout designs intended for ultra-low water flow rates without a dribbling affect.

And because of the new designs, it is important to understand what this does to a product. An older shower that was originally designed for 20L/min will suffer drastically in performance when condemned to the use of an 8L/min flow controller. However, a showerhead that was originally designed for only 8L/min may in fact see disastrous consequences if exposed to significantly higher flow rates. Rimless toilet pans flushed with higher pressures are susceptible to splashing around the surrounding floors.

Placing a flow controller, for example, in the wall elbow of a hand shower not only reduces the flow to the desired rate it was engineered to, but also reduces

New product designs are only now achieving efficiency in the way that the WELS scheme had originally intended.

the dynamic flow pressure through the shower hose and hand piece. Removing it creates flow pressures not designed to be seen and could see premature failures in new innovative products with multiple spray patterns. Raising the water level in a cistern could create splashing problems on a carefully designed rimless pan. Or possibly empty the bowl of a toilet through a siphon that would not have originally existed at the originally designed water level.

LABORATORY OBSERVATIONS

The laboratory at PROVE has seen changes over the years where reputable companies looking to deliver quality products are looking for more than a simple tick in the box with test results. Having a pass result is no longer always a desirable outcome for a product looking to make a presence in the market. Careful checking of results for performance and comfort tests are becoming increasingly more

important to ensure that products do not just meet minimum performance requirements, but are also likely to meet expected consumer demands – because the two are not always aligned.

Water efficiency under the true definition of the term doesn't just happen by limiting water consumption. Efficiency is something that must be designed and engineered through proper product development to ensure that the same outcome is achieved using less input. Correct product installation from licensed plumbers is a key component to the result.

Attempting to alter a product that was engineered for low water consumption does not necessarily have the same benefits that existed 15 years ago. Removing a flow controller, increasing water levels in cisterns, or other tampering of products that used to eliminate nuisance calls from licensed plumbers could prove to be a double-edged sword. It could result in

returning to an installation to correct a problem that never actually existed.

Australia's consumers and licensed practitioners queried the relevance of the WELS scheme when it first became mandatory in 2007. However, our entire water industry should take a moment to be proud and reflect on how it has changed the development of plumbing products both here and abroad. Whilst the market in Australia is relatively small worldwide, the uptake of similar water conservation initiatives that have derived around the globe from Australia's WELS scheme has without a doubt changed the way engineers have designed the products of the future. ■

Terry Nguyen (BEng) [MIEAust] is a Plumbing Test Consultant at PROVE Standards & Engineering Pty Ltd. For more information, please feel free to contact PROVE Standards & Engineering at <https://proveng.com.au>



RAINWATCH

RAINWATER FILTER

CLEAN YOUR RAINWATER BEFORE THE TANK!



Available at your local Reece branch



GET TO KNOW HEAT PUMPS THIS WINTER

Most Aussies think that hot water systems are a choice between gas, electricity or solar. The reliability, installation and cost of each option vary, and each have their respective strengths and weaknesses. We asked Rheem to explain how heat pumps can also contribute to effective solutions.

Benefits aside, during winter months customers first and foremost want to ensure their hot water is reliable. Here are the answers to common questions on heat pumps we see during the colder months to help plumbers explain why this technology might be the best option for them.

HOW DO HEAT PUMP HOT WATER SYSTEMS WORK?

Simply put, heat is collected from one space and released into another.

Much like how an air conditioner cools and distributes air, heat pump systems extract heat energy from the surrounding air and use it to heat water in the tank.

BUT WILL THEY WORK IN WINTER?

One of the most common questions customers ask about heat pumps is whether they will continue to work as efficiently through the cold winter months.

It might not feel like it in July, but there is always heat in the atmosphere. Regardless of weather, heat pump technology will continue to draw on that energy to heat water, 24 hours a day and all year round, with a back-up element to ensure hot water is available in extremely low temperatures.

While brands and models vary, the Rheem Ambiheat Heat Pump, for example, will work in temperatures ranging from a scorching hot 43°C right down to -5°C. The back-up electric element, similar to the booster on a solar system, will ensure hot water supply even in extreme cold. How often do we get to -5°C, though?

DOES HEAT PUMP EFFICIENCY REDUCE ELECTRICITY COSTS?

Yes. As the trend towards renewable green energy and energy-efficient appliances continues, demand for heat pumps is increasing, with Rheem Australia noting that sales are exceeding expectations and targets since launching Ambiheat last year.

Heat pumps boast exceptionally high efficiency. For example, the COP [Coefficient of Performance] of Rheem's Ambiheat comes in at an impressive 4.5 kW – which is one of the highest in Australia.

Heat pump technology is also a smart, flexible, energy-efficient hot water alternative for houses and areas where solar hot water solutions may not be suitable.

For those who live in houses with roofs that are too small or do not face in the right direction to catch the sun's rays, heat pumps offer a smaller, sleeker solution for households while still delivering reliable hot water and using substantially less



The Rheem Ambiheat heat pump.

energy than electric water heaters. What's more, the Ambiheat has a similar footprint and connections to its traditional electric counterparts, making it an easy replacement.

DO THEY COST A FORTUNE?

Heat pumps are not only good for the environment, but also for your customers' wallets.

They generate hot water with less electricity than traditional electric water heaters, meaning your customers could save up to 68%* of their usual water heating energy usage when compared to traditional electric.

Although a little more expensive up front compared to cheaper electric heaters, heat pump hot water systems will actually save your customers in the long run. They are far more energy-efficient than traditional electric water tanks, and even slightly more than solar hot water systems.

Helpfully, heat pumps are also eligible for government rebates and financial incentives on renewables. ■

Footnote:

* Energy savings of up to 68% are based on Australian Government-approved TRNSYS simulation modelling using a medium load in Zone 3, and apply when replacing an electric water heater of similar size with a Rheem 551270 Heat Pump water heater. Zone 3 covers most capital cities. For more information visit www.rheem.com.au/rheem/help/offers-and-incentives/stcs



Connect. Control. Conserve.



Trusted & Proven
Solutions for
Every Application

NEW LFN45B & LFN55B PRV

WATTS Pressure Reducing Valves

Watts offers the greatest breadth & depth of product in the industry.

We have a trusted & reliable PRV for every application.

Our new **LFN45B** and **LFN55B** High Performance range of PRV are Lead Free and suitable for the most demanding pressure situations, with high grade materials suited for even the most challenging application.

Watts is your one-stop partner for the valves with the configurations you need for residential homes, specialty applications, or commercial jobs.



LFN55B



LFN45B

- **LFN55B High Performance features:**
 - Pressure Reducing Range: 517kPa(75psi) to 1035kPa(150psi)
 - Standard Set Pressure: 800kPa at 1207kPa(175psi) incoming
 - Maximum Incoming Pressure: 2760kPa(400psi)
 - Sizes 1/2" (15mm) — 2" (50mm)
 - Working Temperature: 0.5°C to 82°C
 - Durable brass spring cage
 - Ideal for commercial construction
- **LFN45B features:**
 - Pressure Reducing Range: 172kPa~517kPa
 - Standard Pressure Setting: 500kPa
 - Maximum Pressure: DN15-DN25: 2760kPa
DN32-DN50: 2070kPa
 - Sizes 1/2" (15mm) — 2" (50mm)
 - Working Temperature: 0.5°C~82°C
 - Proven & economical valve
 - Lead Free cast silicon copper alloy body construction
 - Integral stainless-steel strainer
 - Thermoplastic seat
 - Bypass feature controls thermal expansion pressure
 - Sealed spring cage on all models for accessible outdoor or pit installations
 - Serviceable in line
 - Shortest lay length
 - Engineered resin-caged PRV design

• DESIGN • VERSATILE • HIGH PERFORMANCE SUITABLE FOR COMMERCIAL



Australian Valve Group
A WATTS Brand

Tel: 1800 AVG AUS (284 287)
www.wattsau.com.au



HOW DOES ROOF SLOPE AFFECT THE CATCHMENT AREA?

The Plumbing Codes devote a lot of attention to the topic of roof slope and how it affects a catchment area, but it can be confusing. Ken Sutherland provides a clear overview.

The design catchment area is not the actual area of the roof sheets. So how do we figure out what the design catchment area is? And why is this so? I will attempt to offer an explanation.

The crucial thing to understand is: Rainfall measurements are taken as the water depth in millimetres of rain falling on a horizontal surface, over a given time.

That is the way the Bureau of Meteorology measures it. The angle of the rain is not important to them. All that matters is the depth of rain that has fallen over a given time.

So, when thinking about this, we need to calculate the area on a horizontal plane, where the rainfall would have fallen, if the roof wasn't there. The roof intersects this amount of rainfall.

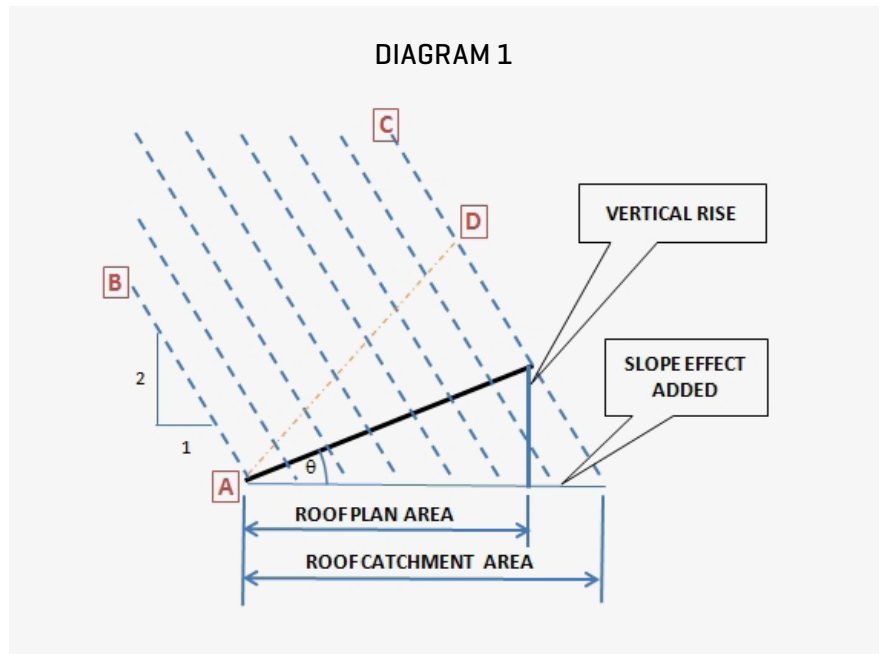
This way, our method of measurement will be the same as the way the Bureau of Meteorology measures rainfall.

Therefore, we will both be on the same page, and we can use their data in our calculations.

However, to do this, somewhere along the line, someone must dream up at what angle the rain is falling.

Fortunately for us, the powers that be have come up with an angle of 2:1, as shown in the Diagram 1.

However, just like anything to do with rainfall, there is no standard rainfall event.



DIAGRAMS: SUPPLIED BY KEN SUTHERLAND.

All we can do is base the design on averages and figures pulled out of the air.

For instance, we design eaves gutters based on a rainfall event that may, or may not, occur once in every 20 years.

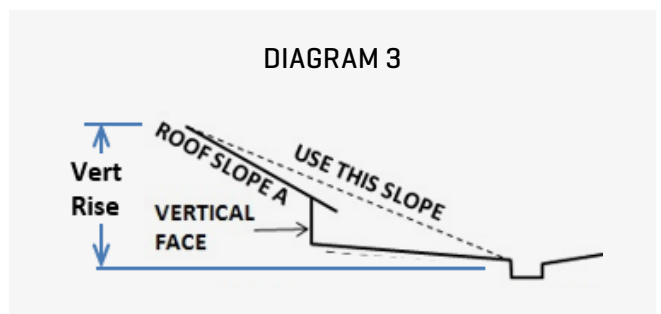
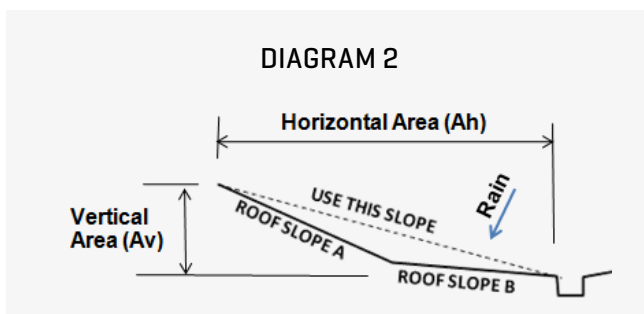
A rainfall angle of 2:1 is as good as any; in fact, this makes the calculations much easier. Looking at Diagram 1, if we have a vertical rise of 2m, we will have a slope effect [horizontal distance] of 1m. [2V: 1H].

Also from Diagram 1, a roof from A to D also intersects the same amount of rain as the main roof.

In fact, any roof between rainfall lines B and C will intersect the same amount of rain, and therefore have the same catchment area.

But what is interesting is that it doesn't matter what the roof does to get from point A to point D.

It can go up and down, or round and round. ➤



Is your tapware NCC 2022 compliant?

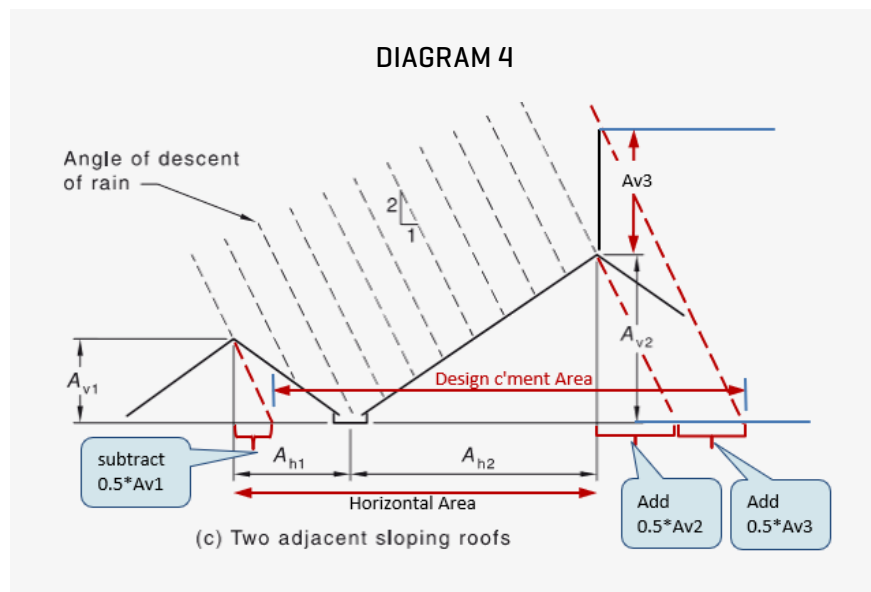
Discover our Lead Safe™ range
galvinengineering.com.au



TRADIE CONNECTION

PLUMBING CONNECTION BUILDING CONNECTION ELECTRICAL CONNECTION

www.facebook.com/tradieconnection



Providing the starting point is on rainfall line A-B, and the ending point is on rainfall line C-D, it will intersect the same amount of rain, and therefore have the same catchment area.

CATCHMENT AREA

To determine what the real catchment area is, we must determine the area of the **vertical rise**, and add half that to the roof plan area [as shown in Diagrams 1, 2, and 3].

Now the hard part – we must do some mathematics, trigonometry, and geometry. [All that fun stuff.] Or we can leave it to Excel, or we can look up a multiplying factor in AS/NZS 3500.3 Table 3.4.3.2.

So, for those of us interested in the maths, lets plough on and give it a go.

We know the rain falls at an angle of 2:1, therefore in the Diagram 1 above the length of the 'slope effect added' is half the 'vertical rise' [2:1 remember].

This is also true for the roof **areas**, that is the **area** of the slope effect added is half the **area** of the vertical rise.

So, all we need do now is find the area of the vertical rise.

Anyway, to avoid these calculations you can look up the multiplying factor 'F' in the Plumbing Code AS/NZS 3500.3 Table 3.4.3.2 and multiply the roof plan area by this factor, or simply measure the area from the architect's drawings.

If you can remember your trigonometry,
The vertical rise area [VA]
= [roof plan area] * tan [roof slope] ... [1]
Catchment area [CA]
= roof plan area + 1/2[VA] ... [2]
Substitute eqn 1 in eqn 2
Therefore CA
= roof plan area + [1 + 1/2 * tan [roof slope]]
= roof plan area * F,
where F = [1 + tan [roof slope] / 2]

For a straight roof the architect has normally shown this slope on the drawings.

But if there are vertical drops or different slopes, then we can take the total vertical rise as shown in Diagram 1.

This will intersect the same amount of rain as if we calculated each roof individually.

However, it works both ways. We can have a rain shadow where we subtract half the area of any vertical rise/face. [See Diagram 4.]

For a complicated roof, think of it this way: **'What is the area on the ground where the rain would have fallen if the roof wasn't there?'**

This will be our design catchment area. ■

Ken Sutherland CPEng,
MIEast, RPEQ has been a
Hydraulic Consultant for
over 30 years, and now offers
many Free Design Programs
on Waterpipesize.com.au and
roof-gutter-design.com.au



ALLPROOF

I N D U S T R I E S

Allproof plastic drainage channels, pits and cast-in fire collars made from **100%** recycled plastic using **solar energy**



MADE FROM
RECYCLED
PLASTIC



Utilising solar energy and post consumer recycled materials, our high-performing products are made with the environment in mind. We proudly do our part towards a more sustainable future.

allproof.com

PLUMBING PRODUCTS WITH REDUCED LEAD ARE COMING

You will soon notice increasing numbers of plumbing products containing reduced levels of lead in the marketplace.

The 2022 edition of the National Construction Code (NCC) will introduce a new limit for the allowable level of lead in plumbing products used for drinking water. This requirement will come into effect on 1 September 2025.

From this date, copper alloy plumbing products containing more than 0.25% lead will no longer be authorised for installation in a plumbing system used to convey drinking water.

WHAT DOES THIS MEAN FOR THE PLUMBING PRACTITIONER?

Currently, a small amount of lead is used in the manufacture of some copper alloy plumbing products. While existing products are safe, health officials recommend that where exposure to lead can be reduced, it should be reduced.

During the transition period between 1 September 2022 and 1 September 2025 plumbing practitioners may continue to install existing products as well as those with a reduced level of lead, providing the products are all certified in accordance with the WaterMark Certification Scheme. However, from 1 September 2025 only products that are compliant with the lead requirements of the NCC will be authorised for use.

REDUCTION OF LEAD LEVELS IN COPPER ALLOY PRODUCTS

Clause A5G4 of NCC 2022 Volume Three (Plumbing Code of Australia) will specify

that all copper alloy plumbing products in contact with drinking water must limit the allowable lead content of copper alloy plumbing products in contact with drinking water to a weighted average lead content of not more than 0.25%.

The ABCB agreed to a three-year transition period to allow industry to make the necessary changes to provide products to the market in compliance with this requirement. The three-year transition period will commence on 1 September 2022.

WHAT PRODUCTS ARE COVERED BY THE NCC'S LEAD REQUIREMENT?

All copper alloy products that are in constant contact with drinking water will be required to comply with the lead requirements of the NCC. These include: fittings, valves, backflow prevention devices, taps, mixers, water heaters, water dispensers (boiling and cooling units) and water meters.

The WaterMark Schedule of Products (<https://watermark.abcb.gov.au/certification/schedule-products>) outlines all plumbing products which require WaterMark certification to be authorised for

installation in a plumbing or drainage system. The schedule will also be used to outline which products must comply with the lead requirements of the NCC.

During the transition period, products will start to be manufactured with labelling on the product to indicate

compliance with the NCC's lead requirements. This will help you easily identify compliant lead-reduced products.

DOES THE LEAD REQUIREMENT APPLY TO ALL PRODUCTS?

No, the lead requirement does not apply to all plumbing products. Some products that are not in constant contact with drinking water and have a low likelihood of being used for drinking water consumption are exempt.

These include products such as shower heads, washing machines, dishwashers, commercial boilers (associated with HVAC systems), emergency deluge showers, and eyewash equipment.

Copper alloy products used in firefighting equipment, irrigation systems, and recycled water systems are also exempt from the lead requirement because they are not in contact with drinking water.

Existing copper alloy products in the marketplace that are not compliant with the NCC's lead requirement can only be used until 1 September 2025. Beyond this date these products may be used in other applications that are exempt, such as systems that are not used to convey drinking water. ■

NEED MORE INFORMATION?

The ABCB has worked with industry to develop an Implementation Plan (<https://abcb.gov.au/resource/lead-plumbing-products-implementation-plan>) to achieve the lead requirements of the NCC.

Further information about the Plumbing Code of Australia is available on the ABCB website at www.abcb.gov.au

A REVOLUTION IS COMING...

THE FREE LOW VOC SOLVENT CEMENTS



An Australian first from

T. 1800 242 931
www.rlapolymers.com.au



UPDATE ON REVISION OF AS/NZS 5601.1

Regular contributor **Enzo Alfonsetti** from Energy Safe Victoria provides an update about the latest revision of AS/NZS 5601.1, which is designed to enhance public safety in relation to gas appliances and installations.

Last year I provided an update on the revision of AS/NZS 5601.1 *Gas Installations – General Installations* and at that time indicated that the project to revise the standard was at the public comment stage. Over 200 public comments were received and reviewed late last year, with all comments resolved. As a result, a ballot draft was published, and balloting occurred between 11–24 February 2022.

At the time of writing this article I had just received the news that the ballot was successful and that the project would now proceed to the development of a pre-publication draft. A final review of a pre-publication draft will be undertaken to ensure that there are no editorial or formatting errors prior to publication.

The changes to the standard are many and varied, as I reported last year; however, in order to provide a recap I have listed some of the major changes that gasfitters will need to consider once the standard is published and enforced:

- Prohibition on the use of flexible flue liners for applications other than within chimneys unless the flue liner is part of a certified appliance design (e.g., balanced flue system).
- Brazing prohibited within 1m of a joint with non-metallic components.
- Prohibition on the installation of multilayer pipe above-ground external to buildings.
- Provision of emergency isolation

for fire protection for buildings with multilayer pipe.

- Increased clearance between domestic cooking appliances and range hoods from 600mm to 650mm for new kitchen installations to align with the international rangehood standard IEC 60335.2.31.
- Prohibition on the use of semi-rigid connectors in the installation of commercial catering equipment.
- New diagrams for consumer piping in wooden joists and metal-framed walls.
- New requirements for the protection of combustible surfaces adjacent to commercial catering equipment.
- New pipe sizing graphs and tables based upon the Churchill friction factor equation, which will allow for greater flow capacities for complex gas installations where large pipe diameters and longer pipe runs are used.
- Information on the effect of altitude on gas supply pressure for high-rise building installations.
- New requirements and drawings for the location of flue terminals under a covered area, in a recess, or on a balcony.
- New requirement for the isolation of installations in educational institutions.
- New requirements for freestanding commercial catering equipment with under-equipment connection.
- New requirements for the connection of freestanding commercial catering equipment using a hose assembly.

A final review of a pre-publication draft will be undertaken to ensure that there are no editorial or formatting errors prior to publication.



Subject to a successful review of the pre-publication draft, it is expected that the next revision of AS/NZS5601.1 will be published before the middle of the year.

Energy Safe Victoria, in collaboration with the Victorian Building Authority, plans to run a number of seminars and/or webinars in the next few months, which will provide gasfitters with more information on the changes.

There will also be opportunities for questions to be answered.

Energy Safe Victoria will provide further updates on the timing of the seminars/webinars within the coming months. ■

Visit the Energy Safe Victoria website at <https://esv.vic.gov.au>

Enzo Alfonsetti is the Head of Type A Gas Appliance and Component Safety at Energy Safe Victoria. He is chairman of both the Standards Australia AG006 Gas Installation Committee and Gas Technical Regulators Committee.



Elson is the leading manufacturer providing

Lead Free* Plumbing Solutions

LEAD FREE* UNION BALL VALVE instantaneous water heater connection kits



LEAD FREE* FLARED UBV KITS

- LEAD FREE* DR BRASS, < 0.1% Pb
- No Teflon sealing tape required
- Fast & easy installation and orientation
- Full flow ball with robust handle
- Flared & Press complete range



LEAD FREE* PRESS UBV KITS



99.9% Lead Free
< 0.1% Pb

Hot Water Lead Free* Valve Solutions

- LEAD FREE* DR BRASS, < 0.1% Pb
- Non-Return Isolating Valves (Max. Peak 93°C, Max. Continuous 65°C)
- Non-Return Valves (Max. Operating 99°C)
- Pressure Limiting Valves (Outlet pressure 350,500 and 600kPa ; Max. Operating 80°C)
- Pressure Reducing Valves Adjustable (Outlet pressure range 150- 600kPa; Max. Operating 80°C)
- Right Angle Pressure Reducing Valves Adjustable (Outlet pressure range 150- 600kPa; Max. Operating 80°C)
- Suitable for hot & cold water



99.9% Lead Free
< 0.1% Pb



LEAD FREE* HOT WATER VALVES



Elson Australasia Pty Ltd | **(02) 9625 7899** | Elson - since 1993 ISO9001 accredited
sales@elson.net.au | www.bushpex.com | www.elson.net.au

* Elson Lead Free copper alloy products are 99.9% Lead Free and contain less than 0.1% Lead by weight.



AIR STERILISATION FOR SCHOOLS, OFFICES & MORE

As governments mandate a return to the workplace, the need for clean-air interior environments is more important than ever. **Jon Palfrey** provides an overview of the SteriWhite Air purification system, which uses UV-C technology to remove 99.9% of airborne bacteria.

What's now available and approved in Australia to assist in combatting airborne contaminants?

Manufactured in Europe and supplied by Energy Smart Water [ESW], the SteriWhite Air is a simple and cost-effective solution to removing up to 99.9% of harmful bacteria that can lead to the ongoing transmissions of viruses via airborne particles.

The SteriWhite Air is a UV-C air disinfection device designed for air disinfection indoors. It reduces the germs in the air by up to 99.99% via ultraviolet lamp sterilisation.

The unit is made from powder-coated steel and rust-proof components with high surface quality that meets the most demanding air-cleaning requirements. The integrated fans distribute the germ-free air within the room. The electronic ballast in the housing is supplied with power via the unit's supply cable, and a shockproof plug with the integrated UV-C lamp that has an average service life of 16,000 operating hours [Refer video link for unit operation].

Recent transmissions of COVID have revealed an increasing need to have air sterilisation as a contributing safety measure in our working and living spaces. With industry groups preparing to return to the office, devices like the SteriWhite Air air sterilisation unit are becoming the system of choice to contribute to providing a safe and clean air working environment.

Used in applications including schools, offices, reception areas, hospitals, restaurants, etc, these units are designed to provide workers and visitors with peace of mind when attending their daily activities in the workplace and social gathering areas.



Air sterilisation systems to remove harmful pathogens are gaining popularity in offices, classrooms, and other public indoor spaces where large numbers of people congregate.

HOW DOES IT WORK?

UV radiation makes up a portion of the light spectrum and comprises wavelengths longer than x-rays, and shorter than the shortest visible light. This portion of the spectrum is further broken up into subgroups by wavelength, with UV-A being the longest.

UV-C is the name given to a portion of the UV [ultraviolet] radiation spectrum comprising wavelengths from 100–280 nanometers. It is also the most energetic portion of the group. All UV radiation is harmful to biological entities, but UV-C's high energy makes it particularly effective as an air-cleaning device.

UV sterilisation or ultraviolet germicidal irradiation [UVGI] has been used as an effective disinfectant in food production and processing, medical and scientific processes, treatment of stored water, and more for decades. It is particularly useful for situations where chemicals cannot be used or their avoidance would be preferable.

UV photons break down certain chemical bonds, disrupting the structure of DNA, RNA and proteins of microbiological threats, preventing them from multiplying, and effectively rendering them 'dead'.

As UV radiation passes through the atmosphere, shorter wavelengths are

filtered out, with almost all resulting UV that reaches the Earth's surface consisting of about 95% UV-A and 5% UV-B.

No measurable amount of UV-C is observed on earth originating from the sun. Instead, all sources of UV-C occur from manmade processes. The effectiveness of UV-C disinfection depends on the total energy applied to the microbiological threat, a result of distance from the UV-C source and exposure time.

UV-C air sterilisation is a growing use of UV-C, but requires careful calculation to maintain efficacy as air flow and volume affect exposure time. SteriWhite Air Air Q, which is European University-tested to 99.99% efficacy, meets local certification requirements and codes in Australia.

UV-C lamps emit a bluish light; this is not UV light, but a result of the mercury used which also emits light at the low end of the visible light spectrum. Most UV lamps typically have a lifespan of 8-10,000 hours. SteriWhite Air's 16,000-hour lamp life means that an industry leading sterilisation period exists without the need for ongoing maintenance and lamp replacements.

The SteriWhite Air UVC air sterilisation device does not require filter changes and has few moving parts, resulting in minimal downtime for ongoing service and maintenance.

HUMAN SAFETY

Care is required in design to minimise 'leakage' of UV-C, as it is hazardous to humans. ESW has further modified the already robust SteriWhite Air to ensure there is no observable quantity of UV-C leakage, even under rigorous Australian independent testing. Hazards of UV-C often mean servicing and maintenance, including lamp changes that must be conducted by a trained technician. SteriWhite Air lamps are safe and can easily be changed by anyone following the proper instructions.

UV-C sterilisation does not require handling, transportation, or storage of hazardous or corrosive chemicals, nor does it leave or create chemical residue.

UV-C sterilisation can be much more sustainable than other air-treatment methods due to low parts turnover, lack of chemical use and low power consumption.

The UV lamps via the inbuilt timer can operate for a typical eight-hour workday duration and for five days a week, providing a potential lamp life of up to 10 years. If a 24/7 lamp operation is necessary, the life of the lamps can be around two years.

FAQS

Q: Do I have to vacate the room while the air is being disinfected?

A: No. The SteriWhite Air Air Q was developed specifically for use in occupied rooms. Testing conducted to the highest Australian standards by independent labs confirmed the device does not leak observable quantities of UV-C light and can be operated 24/7 in occupied spaces safely.

The unit produces neither ozone nor other harmful substances and is designed with safe housing and is free of chemicals.

RBA Group Lead-Free Pre-Plumbed Troughs

AVAILABLE NOW

Lead-Free Pre-Plumbed
1200mm, LH



RBA5503-120-452

Lead-Free Pre-Plumbed
1600mm, LH



RBA5503-160-454

Lead-Free Pre-Plumbed
2000mm, LH



RBA5503-200-455

Lead-Free Pre-Plumbed
1200mm, RH



RBA5504-120-452

RBA's Trough series are
Lead-Free,
6 Star WELS and
compliant to
AS1428.1, VSBA and
EFGS Guidelines

Lead-Free Pre-Plumbed
1600mm, RH



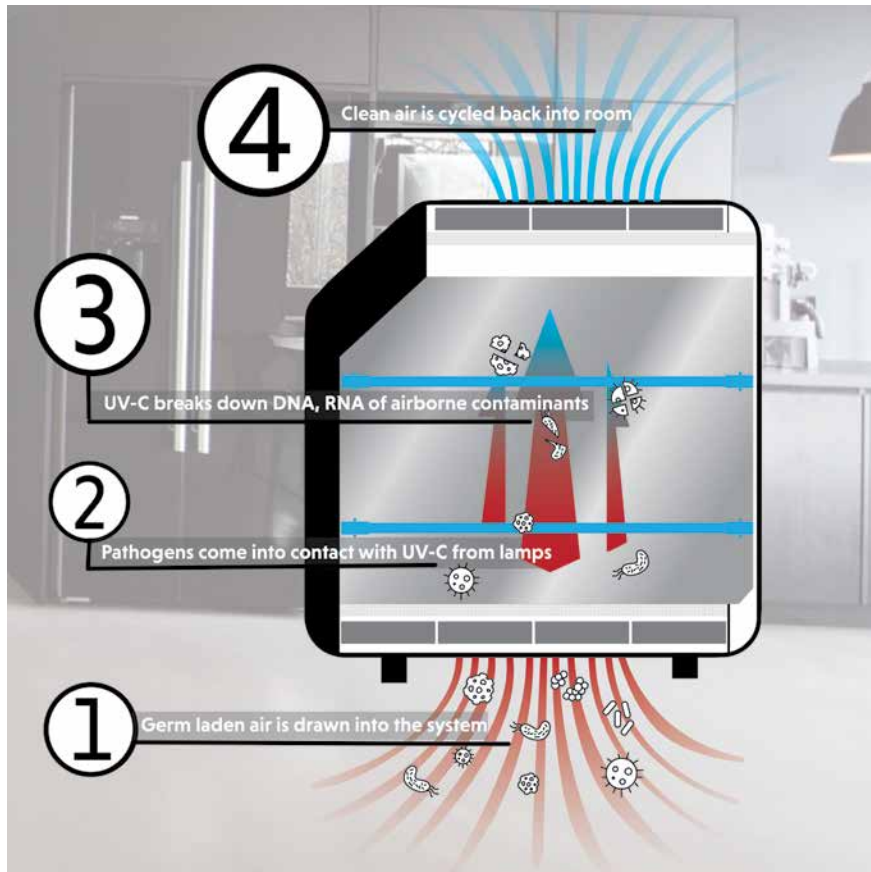
RBA5504-160-454

Lead-Free Pre-Plumbed
2000mm, RH



RBA5504-200-455





Units like this SteriWhite Air device can remove up to 99.9% of harmful airborne bacteria through UV-C treatment.

Q: Do I still need to comply with the hygiene regulations?

A: Yes. While the SteriWhite Air Q significantly reduces airborne microbiological hazards, it is only one part of the solution. To effectively minimise risks, it is important to continue adhering to COVID-safe practices and health and safety regulatory measures.

Q: Where is SteriWhite Air Air Q used?

A: Doctors’ surgeries, hospitals offices, meeting rooms and welfare areas, healthcare facilities such as retirement and nursing homes, childcare centers, school classrooms and educational institutions, reception and waiting room areas.

In addition, applications including catering and hotel industries, stores, and retail trade outlets are all locations and facilities where a device like the SteriWhite Air can remove harmful bacteria.

What is UV-C? And how does UV-C disinfection work?

UV-C is the shortest wavelength of the three forms of ultraviolet radiation, with all UV-C light on earth originating from inorganic sources. When aerosols are exposed to UV-C radiation with a wavelength of 254nm, viruses (including corona viruses and influenza viruses), bacteria and mould spores are inactivated and rendered harmless. The high disinfection power of UV radiation has been scientifically proven for decades, and its effect on corona viruses has also been amply confirmed, safely and efficiently minimising the risk of infection with SARS-CoV-2 and other pathogens.

SARS-CoV-2 and many other common viruses are primarily transmitted via aerosols emitted into the surrounding air when we breathe. UV-C ambient air disinfection systems are an effective method of reducing the germ load in the environment, and not only during the Corona pandemic.

Energy Smart Water here in Australia has completed the most rigorous local safety certification requirements to ensure this product type is ready and available to meet local needs to remove harmful bacteria like Coronavirus.

The time is now for our local industries to self-protect against the ongoing issue not only of Coronavirus, but also other bacteria such as influenza that can impact our local industries’ return to normal operations.

Already being used in Australia along with other protective health measures, the SteriWhite Air can form part of the solution for a ‘back to normal’ work and living environment.

STANDARDS COMPLIANCE

- Radiation Protection Standard for Occupational Exposure to Ultraviolet Radiation [2006] Radiation Protection Standard. [RPS 12.]
- AS/NZS IEC 6247.1:2011 Photobiological safety of lamps and lamp systems.
- AS/NZS IEC 62471.2:2012 Photobiological safety of lamps and lamp systems guidance on manufacturing requirements relating to non-laser optical radiation safety.
- AS/NZS IEC 60335.1:2020 + A1:2021 Household and similar electrical appliances – Safety General requirements.
- AS/NZS IEC 60335.2.65:2015 Household and similar electrical appliances – Safety, Part 2.65: Particular requirements for air-cleaning appliances – [including Clauses 32.102 and 22.103].
- CISPR 14.1:2018 Electromagnetic compatibility – Requirements for household appliances, electric tools, and similar apparatus emissions. ■

Contact Energy Smart Water (www.esw.net.au) to obtain additional information on SteriWhite Air.



BEST IN SHOW



For over thirty years Toyota Huski skid steer loaders have built a reputation on outstanding performance, driver comfort and legendary reliability. Continuing this pedigree, Toyota Material Handling has extended the Huski range to also include scissor lift and mini-excavator models.

With skid steer operating loads ranging from 320kg to 900kg, platform heights for scissor lifts 5.72m to 9.68m, and with mini-excavators from 1.3 to 6 tonne, you can be assured that there's a Huski model guaranteed to put you at the head of the pack.

1800 425 439 toyotamaterialhandling.com.au



STANDARDS AUSTRALIA CELEBRATES CENTENARY YEAR

In October 2022, Standards Australia celebrates its 100th birthday. The company's legacy would not be possible without all the individuals who contribute to the organisation, including members, stakeholders, staff, and those directly involved with the development of standards.

WHAT ARE STANDARDS?

Australian Standards are voluntary documents (unless called upon in legislation) that specify minimum requirements to ensure products or services are fit for purpose.

Standards Australia facilitates the development of standards used across 13 industries, including water and waste services.

Many experts across industries contribute to new standards and maintain thousands of existing standards.

DEVELOPING STANDARDS THROUGH HISTORY

For the past 100 years, standards and Standards Australia have been contributing to the overall welfare of Australian and international communities. From keeping communities safe, supporting innovation across industries, supporting the economy, to removing barriers to trade.

"We have a unique history, from developing standards during WWII to campaigning for metrification in the



A lot has happened to standards development and delivery over the past century.

late 1960s to the early 1970s and adjusting to working online throughout the COVID-19 Pandemic," says Standards Australia CEO, Adrian O'Connell.

"Throughout our 100 years' legacy, our contributors have continued to dedicate their valuable time and expertise to develop standards."

PROGRAMS SHAPING THE FUTURE

Looking to the future, Standards Australia is invested in continuing to benefit Australians through its work.

"As Standards Australia continues to develop and grow, we know our people are our greatest asset. The members, stakeholders and staff help steer the standards ship and push through important initiatives and projects. Therefore, we're committed to many projects to attract the best talent and create the best work. Two of these projects are NEXTgen and our Graduate Program," Adrian says.

NEXTGEN

To support those interested in participating in national and international standards development, Standards Australia launched the NEXTgen program in 2012. The free program offers emerging industry and technical experts the opportunity to become involved in national and international standardisation processes. Participants gain a detailed understanding of the world of standards – how they're made, what impact they have, and, most importantly, how to be involved in developing them.

Through the program, participants are given access to training, mentoring



Members of the Standards Australia Graduate Program.

and direct exposure to standards development processes.

"We are fortunate to have experts join our committees to develop standards," Adrian says. "To ensure we have well-balanced committees with a range of perspectives, we encourage people to participate in the NEXTgen program so they can bring with them their diverse and inclusive backgrounds and expert knowledge."

Additionally, NEXTgen participants attend webinars and committee meetings (national and international).

All activities give participants an in-depth understanding of the resources and processes required to shape robust standards, which contribute to Australia's Net Benefit and international standards.

Through NEXTgen, participants are invited to join a technical committee with a For Information Only seat, relevant to their field of expertise, for two years.

Applications for the next round of NEXTgen will open on June 30. You can find out more about the program on the Standards Australia website.

GRADUATE PROGRAM CAREERS

In 2020, Standards Australia launched its inaugural Graduate Program.

The program is an opportunity for talented graduates to kickstart their careers. For Standards Australia, it's also an opportunity to attract talented individuals who are determined to benefit Australians through their work.

The program lasts for 12 months and offers new professionals the chance to rotate across several Standards Australia departments. It allows graduates to learn about the company's processes, procedures, activities, and goals, while creating valuable connections.

"As a company, we enjoy offering younger people the opportunity to learn 'on the tools' at Standards Australia," Adrian says. "It is invigorating to see

recent graduates join our organisation, and not only learn from us, but also to offer incredible insights and ideas which we have implemented."

Both 2020 and 2021 graduate cohorts have gone on to permanent roles within the organisation, bringing with them the knowledge and insights they gained while rotating across the business. The 2022 graduates kicked off their program in February.

STANDARDS' STEWARDS

These programs are just two of many initiatives and projects Standards Australia has created in its 100 years to support those who contribute to standards and those who use them too. Having the best talent involved ensures the best possible standards.

In 100 years, Standards Australia has shaped Australia's history and

contributed to the international standards sector. Without the vital input of all those involved, from committee members, staff, Government stakeholders to graduates, there would be no Australian Standards.

"We are in a unique position as the stewards of such a long and great legacy and, as CEO, I am honoured with this responsibility and take it very seriously," Adrian says. ■

FOR MORE INFORMATION

To learn more about the Graduate Program, go to <https://www.standards.org.au/news/blog/2022/february/standards-australia-s-graduate-program-launches-ca>.

For more information on NEXTgen, go to <https://www.standards.org.au/nextgen>.

Learn more about Standards Australia's centenary year at www.standards.org.au

Life is already dramatic!

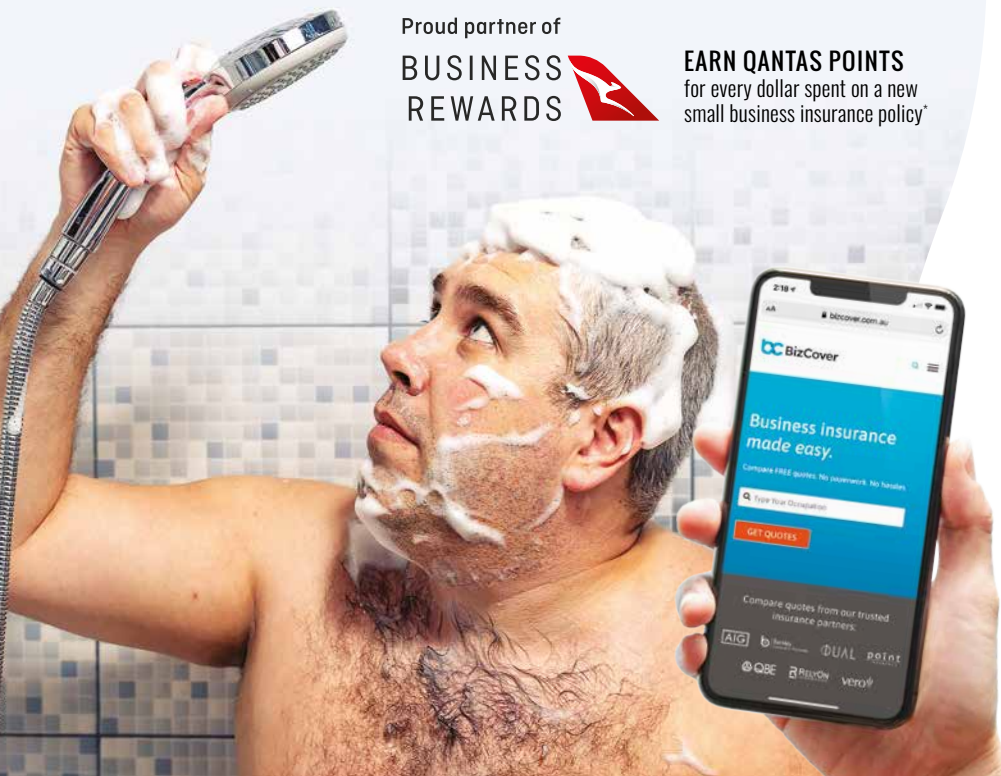
Business insurance doesn't have to be

Proud partner of

**BUSINESS
REWARDS**



EARN QANTAS POINTS
for every dollar spent on a new
small business insurance policy*



bc BizCover



**Compare multiple
quotes online**
in minutes



Instant online cover
- no paperwork



**Save yourself time
and money**

Compare with Australia's Small
Business Insurance Specialist

🔗 bizcover.com.au

📞 1300 805 821

*Must be a Qantas Business Rewards member. Maximum of 10,000 Qantas Points earned per policy. Available to new BizCover policy purchase only and not available with any other offer. See Terms & Conditions at bizcover.com.au/qbr.

The information provided is general only and should not be relied upon as advice. BizCover Pty Ltd (ABN 68 127 707 975; AFSL 501769) © 2022 BizCover. BC2162

IS IT TIME TO LOOK TO LOCALLY MANUFACTURED PRODUCTS?

In the current volatile global marketplace, it may be time to start looking more seriously at sourcing locally manufactured plumbing products as a more reliable and sustainable strategy, says **John Fennell** from the International Copper Association Australia [ICAA].

The COVID-19 pandemic has certainly left an indelible mark on the lives of many over the past two years. In the global supply chain bubble, the impacts have seen empty shelves and many sectors scrambling for supply of critical goods – even at the very highest level of Government. As the world begins to look for a way out, a perfect storm has manifested itself that is impacting Australian plumbers’ ability to maintain productivity and set themselves up for an inevitable increase in activity.

Like many other sectors, the supply shortage of plumbing products has been regularly reported due to reduced access to employees, a global freight network that sees demand outstripping supply, exorbitant increases in global freight prices to unprecedented levels, and geopolitical tensions potentially affecting trade globally.

The impact of this over the past two years has led many to question Australia’s reliance on global supply, increasing the focus on maintaining and building our local manufacturing capability. Australia has a rich and proud history of manufacturing, particularly within the metals sector where our rich ore deposits have serviced the manufacturing industry for metal products for some time.

Manufacturing business like MM Kembla, who still produce around 87% of their Kembla copper tube used in



Local copper manufacturing plants like MM Kembla, NSW, are gaining popularity thanks to the reliability of the company’s supply chains, and, crucially, their transparent regulatory compliance.

plumbing, HVAC, refrigeration, and medical gas service lines out of their Port Kembla, NSW, manufacturing facility, are becoming a rare breed in the plumbing products industry. [MM Kembla is Australia’s only copper tube manufacturer.] So, is it time for us – as plumbers, businesses, and proud Australians – to make a concerted effort to choose locally manufactured products and strengthen our local manufacturing capabilities? The effect of which will improve the availability and continuity of supply to plumbers, reduce the uncertainty of offshore product availability, sidestep shipment delays and rising freight costs, and ultimately reduce our reliance on a global supply chain over which we have very little control.

LOWER-PRIORITY AUSTRALIA?

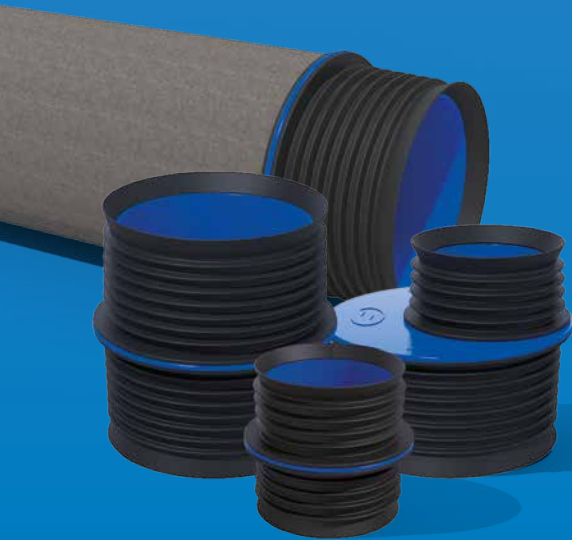
As Governments look to boost economic activity and lead the way out of a pandemic, the global demand for goods is outstripping available supply. Availability of input materials, production capacity, and the impact of fewer available employees due to isolation periods, infections, and border closures, have led to increased and variable lead times on product supply. The imbalance in supply versus demand will likely lead to ongoing issues and, unfortunately, when it comes to global suppliers, the Australian demand may not be as critical as the demand from large countries – leading to a prioritisation of demand that could lead to our businesses being further down in the pecking order.





Innovative Solutions

for the connection of new and existing drainage pipes.



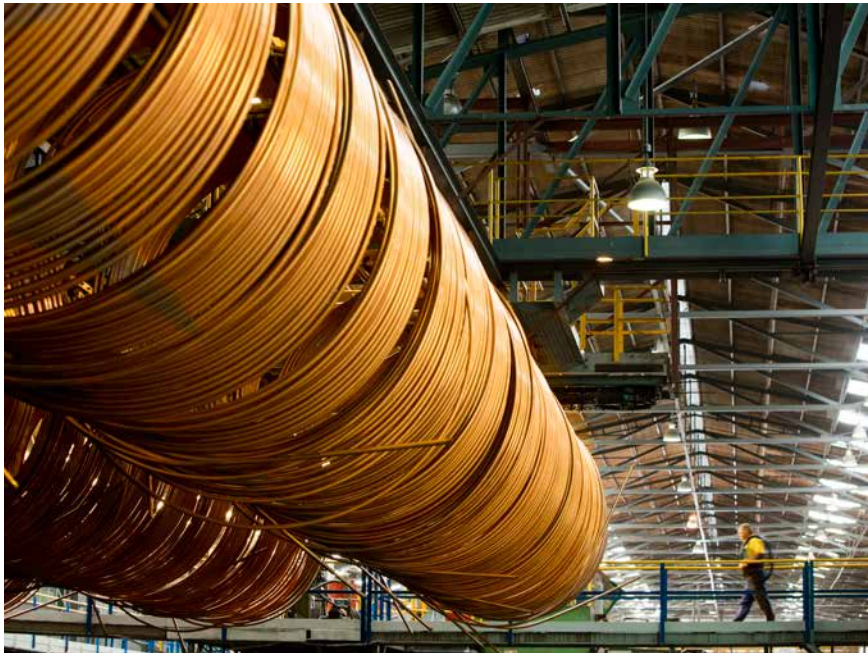
With a large range of products, Hydroflow has a solution to almost any drainage connection scenario.

Some of which include...

- **Shear Banded Couplings** to help keep pipes aligned even under heavy shear loads.
- **Internal Couplings** (aka Icon Couplings) for when the external surface area of the pipe is inaccessible.
- **Flap Valves** to protect environments from the dangers of backflow flooding via the drainage system.



Get in touch with Hydroflow to find a stockist or for more product information visit: www.fernco.com.au



Copper made in Australia provides local jobs while delivering the Quality Assurance that local markets demand.

However, partnering over the longer term with local manufacturers means that businesses can forecast requirements and ensure continuity of supply. When there is short supply of imported product, it is very difficult to ramp up production quickly to meet unexpected requirements. Supporting local manufacturers with a longer-term commitment means that the product will be there when customers need it.

CONGESTED FREIGHT NETWORK

You may have noticed the cost of products increasing over the past 12 months. A big part of that is due to international shipping rates being at all-time highs due once again to COVID-19 disruptions. Shortages of containers, increased demand, congestion at major shipping hubs, and delays at dispatching and receiving ports, have all led to exorbitant increases in the cost to ship from offshore.

The scramble for available space and shipping route congestion have also led to shipment delays and cancellations impacting almost every sector. All indications are that this may not improve for some time, so offshore sourcing is fraught with risks and high costs for the foreseeable future.

It is now time to be looking at locally manufactured options as a longer-term sourcing strategy for many plumbers and businesses to mitigate the associated risks.

GEOPOLITICAL TENSIONS

It's no secret geopolitical tensions have the world on a knife edge, and one of the greatest power plays employed by rival nations usually centres around trade. This may be through trade restrictions, tariffs, restriction of supply or similar tactics. In any situation this can lead to uncertainty of supply availability, with the impact likely to be so fast that Australian distributors, businesses, and plumbers would have little time to look at contingencies – if any are available.

The sourcing of locally manufactured products reduces some of this risk, particularly with critical service products like copper tube. MM Kembla's local manufacturing capability means the nation is self-sufficient in ensuring ongoing and critical construction, repairs and refurbishments are not impeded by geopolitical power plays.

BE RESPONSIBLE

The charter for the commitment to sourcing sustainable and responsibly

produced products is becoming increasingly important in the construction industry. The recently implemented Copper Mark responsible production program now provides the framework to demonstrate that commitment, which is why MM Kembla is proud to be a partner of The Copper Mark.

More recently, BHP's South Australian Olympic Dam copper mine site, from which MM Kembla's locally produced copper tube is sourced, has made its commitment to responsible mining of copper by being awarded Copper Mark certification. The commitment to responsible and sustainable practices by Australian supply chains is even more a reason for us to be looking at supporting these local supply chains.

THE SOLUTION IS 'HERE'

Whilst many of our manufacturing industries still rely on the global supply chain to support their manufacturing activities, a large degree of their raw materials, supplies and other resources are locally sourced. The ongoing supply chain disruptions associated with global sourcing strategies are certainly cause for concern. As demand prioritisation, trade restrictions and costly global freight arrangements and delays impact on the ongoing activities of our plumbers and construction businesses, there is no better time than now to throw support behind locally manufactured products and maintain our rich history of Australian manufacturing.

In the plumbing industry, there haven't been many that have existed longer than Australia's last remaining copper tube manufacturer, MM Kembla. With copper tube available right across the country, and with around 87% of it being produced in Australia, make sure the next time you purchase Copper Tube you ask for the Kembla brand – isn't it time we started to look local? ■

John Fennell has been the chief executive of International Copper Association Australia since 1998.



ATT

WINTER 2022

ACROSS THE TRADES



AUSTRALIA'S CONSTRUCTION SECTOR: A TICKING TIME BOMB?



68 HEALTH



72 MANAGEMENT



78 TRANSPORT

"Unfortunately, when it comes to the issue of non-payment, construction's large-scale problems are very much prevalent," he says.

"Thousands of subcontractors have been forced into insolvency due to the 'domino effect' of bad debt down the line when building and construction companies fail to pay. By the end of 2021, employment in the construction industry is projected to fall by approximately 3.6%, and the fear is that the current climate is only exacerbating this."

Nelson says that coupled with the challenge of properly and fairly allocating risk, the construction sector, which is already one of the most heavily litigated sectors, is likely to see an increase in principals turning to onerous provisions in construction contracts to 'prevent' delay.

"The result will be many projects likely to overrun, which may trigger contractual defaults at all levels of the contracting chain, adding pain to already squeezed bottom lines and working capital reserves," he says.

The point to five specific challenges facing the construction sector:

1. inflation, particularly following the rise in prices of raw materials due to a lack of supply;
2. labour shortages and unskilled labour as a result of lockdowns and closed borders;
3. finance and cash-flow;
4. contractors and subcontractors entering into contracts without proper consideration of risk allocation; and
5. contractors and subcontractors entering into unfair/one-sided contracts in order to start a business relationship, which can result in potential legal proceedings.

The warning signs

In an environment of multiple and potentially diversified projects, spotting the signs that a construction company is struggling may not always be apparent.

"Monitoring project performance from tender to hand-over is essential in a time where many factors that are outside of a business's control can



The construction sector is likely to see an increase in principals turning to onerous provisions in construction contracts to 'prevent' delay.

impact a project's financial success," Andrew adds.

Some warning signs to look out for include:

- any slowdown or delays in projects or deadlines that have lapsed;
- delays in payments to subcontractors or others in the supply chain;
- subcontractors refusing to go on-site;
- lack of contractor education and legal advice - contractors and subcontractors to readily accepting onerous terms.

"These signs indicate a company is struggling with its cash-flow and it's important to recognise them and take early action," Andrew explains.

"While the ATO has taken a compassionate approach to its debt collection efforts during the past 19

months, that won't be the case forever. In fact, the ATO is already starting to send letters to businesses that are behind in their tax."

In circumstances where accrued liabilities, such as tax debt, are becoming apparent on a company's balance sheet, further questions around project profitability and pipeline forecasts are the next investigative step.

"Often we see companies in this industry fall behind due to one or two projects that overrun on costs and/or timing, with the losses eroding all working capital and creating a proverbial 'rob Peter to pay Paul' scenario," Andrew says.

"Identifying a potential problem early expands the options available for the business, ensuring that any financial contagion does not spread further than necessary." ▲

"Identifying a potential problem early expands the options available for the business, ensuring that any financial contagion does not spread further than necessary."



HEALTH



WHY STRETCHING SHOULD BE A PART OF YOUR DAILY ROUTINE

NO MATTER WHAT YOU DO, STRETCHING SHOULD BE A PRIORITY. **DR. FARHAN SHAHZAD** WRITES ABOUT THE MULTITUDE OF BENEFITS, ESPECIALLY FOR THE TRADE INDUSTRY.

Whether you're a running fanatic, surfing aficionado or weekend golfer, maintaining a high level of mobility is essential to enjoying these activities.

Stretching for injury prevention is a contentious topic, as there is no clear evidence about injury prevention from stretching. However, what is clear are the longstanding positive impacts stretching can have on pain, mobility, mental health and range of motion.

Research demonstrates that stretching is extremely beneficial for all people irrespective of occupation, age, lifestyle or health status. As we grow up, we're often reminded of optimising calcium intake to support a healthy skeletal system, however over time we can forget the various other structures including muscles, tendons and ligaments that require our care. Maintaining our muscular system through stretching can be impactful in many ways, from improved range of motion, assisting with chronic pain management and improving quality of life.

For those who work in offices frequently sitting at a desk for prolonged periods, or like many of us during the COVID-19

pandemic have found ourselves working from home, it's important that time is taken for personal wellbeing and long-term health.

Reassuringly, for those time-strapped individuals balancing work, family life and other commitments, evidence demonstrates that fatigue and physical discomfort can be significantly improved with as little as ten minutes of exercise and stretching a day. Keeping up with mobility exercises and stretching can help protect and improve flexion range of motion. This improved level of flexibility and agility developed through regular stretching ensures involvement in physical movement activities can be maintained without being hampered by injury.

It's well documented that physical exercise and movement helps mitigate the risk of cardiovascular disease, hypertension, strokes and other metabolic disorders. Physiologically exercise helps the body with blood sugar regulation and improves insulin sensitivity which can help with Type 2 diabetes management, glycaemic control and prevention for those at risk of developing this illness.

This emphasises the need for ongoing injury prevention, to help ensure a physically active lifestyle is able to be maintained. Further recent research also suggests that activity, work or sport specific stretching may provide the required injury prevention to enable ongoing physical activity participation.

Back pain involving either the lower back, neck or shoulders are amongst the most common musculoskeletal disorders and affect up to 84% of people across their lifetime. Whether working in a physically demanding role on your feet, performing heavy lifting tasks or working solely at a desk looking at a screen, the accumulative effects require prompt intervention to ensure prevention of any associated pain.

Studies have demonstrated that stretching before, during or after work can help prevent work related musculoskeletal disorders and this gives great cause to include it in our daily regime. Even those of us who are time poor can be reassured that a small amount of stretching in time limiting situations to mere seconds can assist with injury prevention and overall improvement in pain.

Another component of maintaining physical wellbeing is achieving good posture which not only improves comfort levels, but also acts as a scaffold toward injury prevention and management of existing pain from chronic conditions or prior injuries. Stretching ensures that range of motion of the joints and surrounding muscles is optimised prior to physical activity, therefore potentially increasing the level of physical performance. Stretching enables increased muscle compliance and decreased rigidity or stiffness, therefore decreasing the risk of injury.

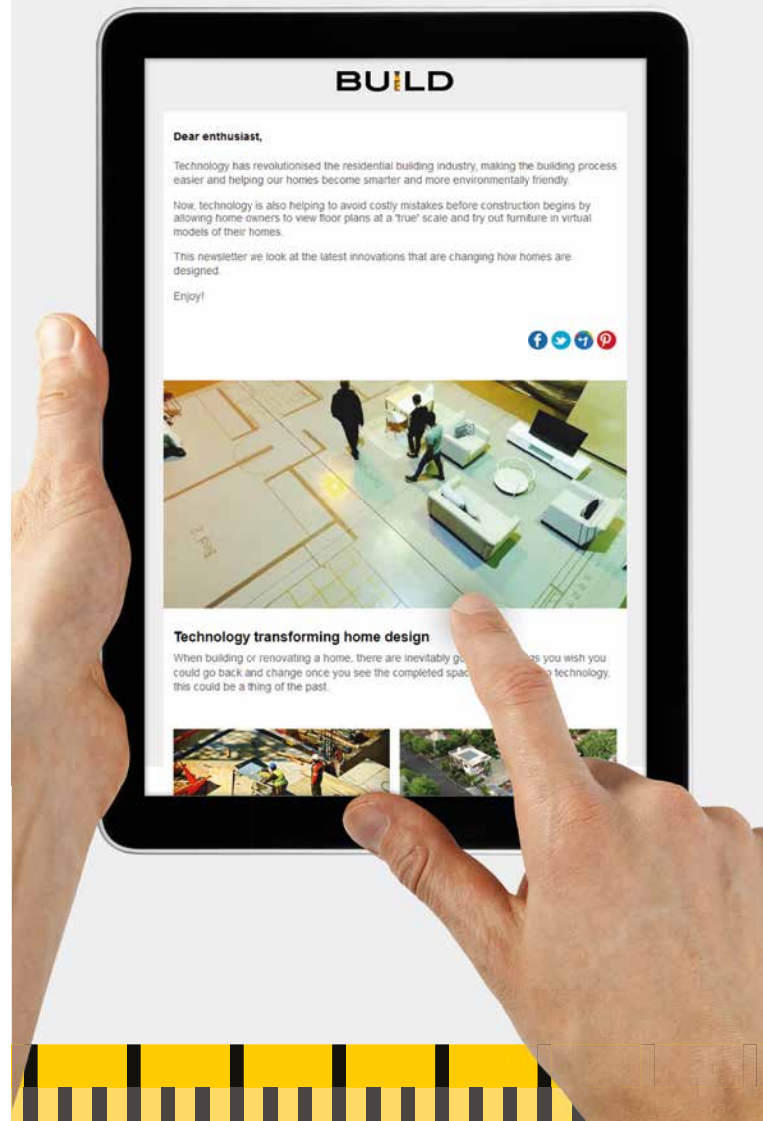
Maximising limb functional ability is performed by consistent stretching and mobility exercises. This approach ensures that extremity deterioration related to increasing age and other factors is minimised. It is however important to note, that any significant changes in physical activity or for specific injury-based mobility exercises and stretches, professional guidance should be obtained.

When performing any form of stretching or mobility exercise, it is essential that consideration is also given to pre-existing risk factors, comorbidities and age. While a stretching regime is excellent for helping muscles and tendons become more compliant in force producing physical activity, injury is multifactorial and it is important that people recognise that overuse, fractures or ligament injuries are sometimes impacted by intrinsic risk factors specific to certain physical activities or extrinsic risk factors related to errors and misuse of protective equipment.

Primary and secondary prevention of injury are important in overall improvement of wellbeing and ensuring a high quality of life. Evidence recommends stretching or mobility exercises should be performed at least twice a week for optimal success. Regular stretching and mobility have far-reaching benefits beyond the physical aspects of health. With research strongly indicating minimised fatigue levels, improvement in mental health, increased overall morale and enhancement of an employee's own view of oneself, workplaces may even benefit from facilitating time throughout the day for staff to get their stretch in. ▲

ARE YOU GETTING YOUR REGULAR BUILD NEWSLETTER?

www.build.com.au/newsletters





WE WANT YOU: TRADIE BOOM LEADS TO RISE IN JOBS

WITH THE PANDEMIC [HOPEFULLY] FADING AWAY, AUSTRALIA AND ITS ECONOMY ARE GETTING BACK ON TRACK. **SEAN CARROLL** WRITES ABOUT WHAT THE RAPID RISE IN TRADIE JOBS IN THE PAST 12 MONTHS MEANS FOR INDUSTRY PROFESSIONALS.

Tradie gigs have seen a huge uptick in the past 12 months. Fergus, a cloud-based platform that aims to help small-to-mid-sized trades and service businesses manage their operations end-to-end, says that trade jobs have increased by 8% on the platform and the increase is in line with the end of lockdowns across the country and the renovation boom.

"The need for tradies is solid, and many construction companies are expanding their apprenticeship programs to respond to the increase in demand," Fergus chief executive Dan Pollard says.

"Part of the reason we're seeing this scenario is that the borders have been closed for almost two years, and we've had a decline in immigration. But it's also true that Australia will need to increase its capacity to train more people, even once the borders open."

Dan says that companies should make sure they're taking a long-term approach to their businesses during this time of high demand. While the market has its ups and downs, great businesses are always in need and by delivering an appropriately priced, quality product, trade companies can carry a short-term win into longer-term success.

On top of consistency, businesses must keep up their staff figures.

"Tradies should always have a roster of apprentices in development to minimise disruption if and when staff numbers start to thin," Dan adds.

"Tradies should also investigate whether they're eligible for any grants to assist with subsidising apprentice wages. For example, the Australian government introduced the Boosting Apprenticeship Commencements (BAC) wage subsidy scheme, which



compensates businesses training apprentices by up to 50% of their wages for 12 months."

The BAC subsidy was created as a post-COVID stimulus, aimed at getting a strong pipeline of skilled workers in the country to support sustained economic recovery, well past a post-lockdown boom.

Another tool for tradies trying to make the most of the increase in work is appropriate time management practises. Instead of spending so much time in the office running the books, Fergus recommends outsourcing as many back-office activities as possible, even automating them with technology.

"The right technology platform has the power to transform how a tradie runs their business altogether," Dan explains.

"While technology won't solve all problems, it should make it easier for tradies to do their job when integrated

correctly. We'd recommend taking stock of your current platforms, culling what you don't need and investing in what you do need."

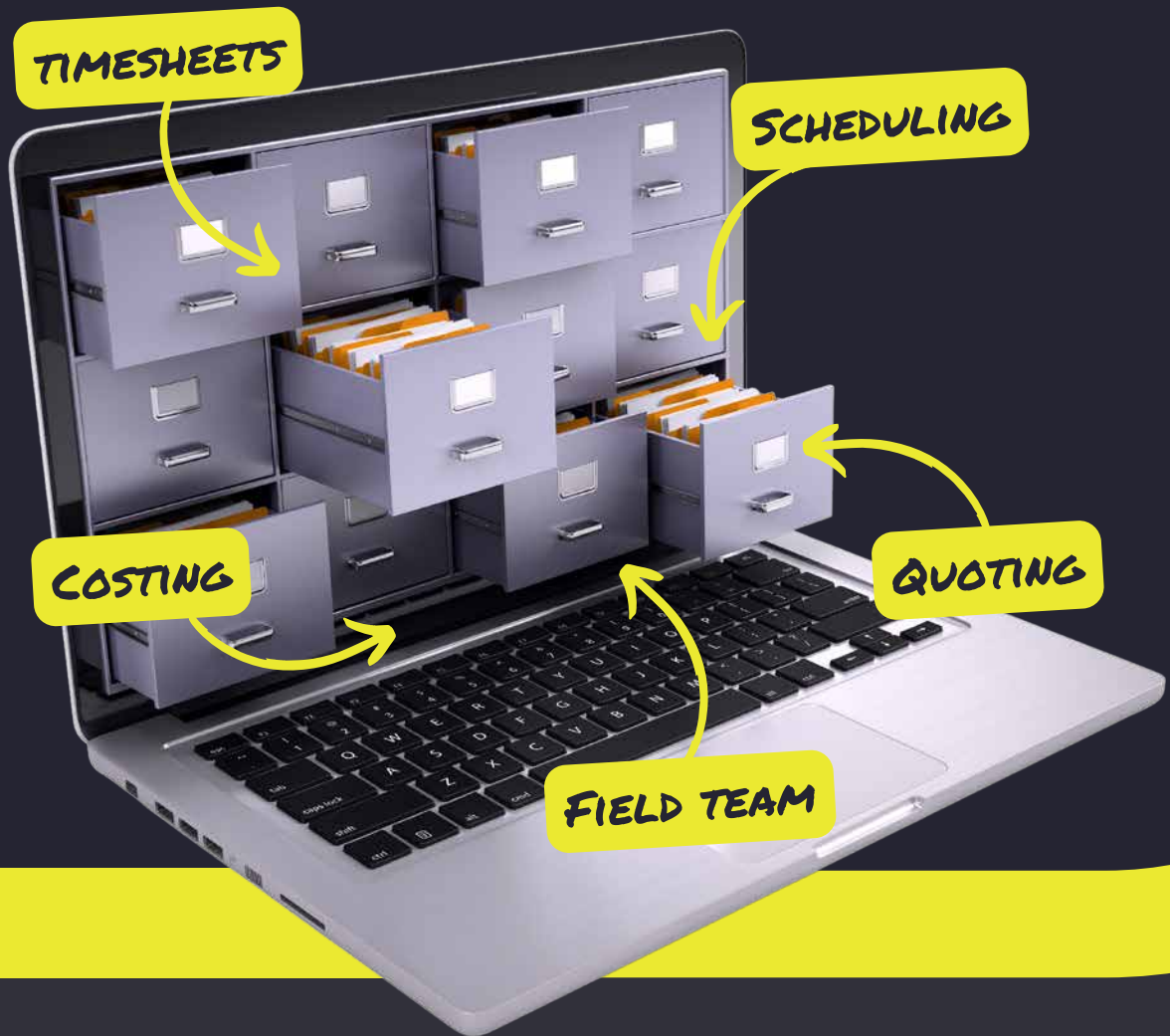
The boom in tradies jobs doesn't appear to be subsiding any time soon. Australia looks like it's on the other end of lockdowns, on the other end of the pandemic and powering through. There is a seemingly endless number of jobs out in the industry today and with home owners continually investing inside, there's plenty of work to chase.

"Tradie businesses either boom or bust in periods like this. Be the tradie who booms and shore up your workforce, outsource whatever keeps you off the tools and quoting more jobs, lean on technology to make day-to-day operations quicker, easier and as stress-free as possible," Dan concludes.

"If you do all of this, you've got the potential to turn 2022 into one of the best years yet." ▲

"I regret organising my business"

- Said no one ever



AroFlo job management software allows you to manage your field team, jobs and assets, plus complex processes like compliance and finance - all in one platform.

DEMO



AroFlo

Job management. Sorted.



MANAGEMENT

FIVE INCENTIVE IDEAS, SO YOUR BEST STAFF NEVER WANT TO LEAVE

BUSINESS COACH DANIEL FITZPATRICK LOOKS AT HOW TO IMPLEMENT INCENTIVES THAT KEEP YOUR STAFF SELF-DRIVEN AND POACHER-PROOF.

Nothing stings more than losing one of your standout workers. You know who I'm talking about. The ones that always turn up on time, have a great attitude and never let you down. They'll go the extra mile because they take pride in their work.

Things tick along nicely. Until they ask for a "quick chat". They've had an offer they can't refuse and they're off. You ask what you can do to keep them, but that ship has sailed.

Great staff are worth their weight in gold at the moment. So how do you make sure your best staff stick around? Think about your current team. Who can you not afford to lose?

Now consider this...

1 Can your incentives pass the poacher test?

Say your best employee got approached tomorrow with a job offer. What would stop them saying yes? Losing a valuable team member hurts.

The best incentives help you build a culture that people won't want to leave.

Everyone wants to know where they're heading. Help them get what they want in their lives. Invest in training them. Align their goals with your business goals. Show them how working with you gets them the career path they want. This creates loyalty and they are less likely to get poached.

Give great bonuses for hitting targets, like the team gets a certain

dollar amount for completion of a job on time or early. Consider a \$10K bonus if they are still with you at the end of each year.

For the ultimate employee - consider offering a profit share or even an ownership share to keep them for good. Without stating the obvious, these incentives should only be considered for your MVPs.

2 Do you know what your staff want next?

Long-term incentives are crucial for retention. But you've also got to walk before you can run. Knowing what your team wants in the short-term matters, too.

Have you spent time finding out what your team members value most? Don't assume you know what they consider good perks. Ask them and find out what they really want. They'll give you powerful incentive ideas for now and later on.

Show them how going the extra mile will help you help them achieve that goal. One business owner I work with goes out of his way to help out his staff. In their first few months, he finds a way to contribute to their personal lives. This could be setting them up with a mortgage advisor if they're looking for a house, or they get to leave an hour early to coach their kid's sports team on Thursdays.

The point is, it's what matters to them.

3 Is your incentive program breeding entitlement?

Entitlement. It's the last thing you want in a staff member. So how do we stop it creeping in from incentives?

You might do this already - keep them random. Shout your guys the odd coffee here and there. Give them a gift card to the local tool supplier when a curveball meant they really had to dig in to get a job done on time, and they knocked it out of the park.

At the risk of stating the obvious - the key lies in the inconsistency. They're informal gestures that say, "we appreciate your effort". Keeping them unexpected is what keeps entitlement at bay. If staff don't know they're coming, then expectations don't grow.

That said... random incentives are a move, not a game plan. They're valuable, particularly if you sense entitlement brewing. But they're best placed as the cherry on the incentive cake - not as the cake itself.

4 How often do you ask your team members for their number?

You've asked each staff member what they prefer as an incentive. Extend the buy-in. Ask them to come up with their own performance goals.



Business coach and creator of Next Level Tradie Daniel Fitzpatrick.

Go through this process together. Agree on something, then catch up regularly to help them stay on track. This doesn't have to be long (ten minutes weekly should do it), but consistency is key.

For example, if your apprentice wants to work on turning up on time or improving their attitude, and you agree, hold them accountable to these performance goals by grading them out of ten at the end of each week.

Do this with each of your team so everyone has something they're aiming for. This way they don't get bored, as studies show being bored in their current role is the biggest reason people look for a new one.

Keep your team challenged by giving everyone a number that they're accountable to. The best sports teams are great at this. The players hold each other accountable, not the coach. When everyone has their number, your guys will help each other out too.

5 How big are you on the little things?

Incentives are great. But they're not your only tool to building a team that loves working for you.

Recognition is powerful (and definitely a lot easier). Research shows that 63% of staff who feel recognised are highly unlikely to look for a new job.

On the flip side - a lack of recognition is why 44% of employees change jobs.

One tradie I worked with had an admin person who was on a bit of a performance roller coaster. She wasn't quite giving the boss what he needed. Productivity fell, especially when she was at

home during the holidays. Deliverables weren't meeting deadlines or required standards.

Tough conversations weren't working. Turns out she finds it hard if she's not encouraged. Once he said things like "thanks for your work on that project - I couldn't have done it without you" there was a huge change. She was diligent again and a lot easier to work with.

So, what drove this change? Not a lot, actually. Just her boss made her feel appreciated by acknowledging what was true - he couldn't have done that task without her.

Sometimes we can overlook the power of recognising the value of what our team does every day.

This recognition doesn't have to only come from you. Put praise from customers in your group chat. This will make your team feel great about the work they've done.

Recognition of a job well done can be one of the best returns on investment in your business. How often do you say thank you?

So, what's the ultimate key to staff retention?

You've got to pay your staff well, but more money isn't always the answer.

Instead, find out what truly matters to them and reward them in that way. Even better, attach it to their long-term professional growth.

Make it personal. Cookie cutter bonuses and incentives can be helpful, but they only go so far.

Align staff incentives with your business goals. This gets everyone on the same page and your business ends up running with the fluency of a Formula 1 pit crew. Well, maybe not quite. But you get the idea. ▲

Need some help to get your team performing at the highest level? Book a free strategy chat with me at Next Level Tradie (nextleveltradie.co.nz/nextstep/)



DAMPENING THE SILICA ISSUE

RESPIRABLE CRYSTALLINE SILICA (RCS) IS A MAJOR ISSUE IN THE BUILDING AND CONSTRUCTION INDUSTRY. SEAN CARROLL WRITES ABOUT WHAT ARTIBUS IS DOING TO TACKLE THE ISSUE ACROSS THE COUNTRY.

Silica, or more specifically, silica dust is a known hazard that comes from some stone, rock, sand, gravel and clay. It can be found when manipulating several common materials like bricks, tiles, concrete and some plastic material.

Because of where it comes from, it's critical for building and construction workers to know about the risks associated with it and steps to prevent the release of respirable crystalline silica or silica dust.

Workers in engineered stone benchtop manufacturing, finishing and installation are at particular risk, as this comparatively new material contains up to 95% crystalline silica, as distinct from natural stone's crystalline silica composition of 5%-50%.

The results are deadly as silica dust can lead to lung cancer, silicosis, chronic obstructive pulmonary disease and kidney disease. All states and territories across Australia have work health and safety laws that explain duty of care for employers and workers' responsibilities.

Despite the abundance of caution and laws surrounding the prevention of silica dust, it's estimated that 230 Australians a year develop lung cancer due to past exposure.

"In recent years, there have been stories around accelerated cases of silicosis and lot of that has been emanating from engineering, manufacturing and the energy industry," Artibus Innovation senior project officer Charles Donnelly says.

Artibus Innovation is a skills service organisation assisting the National Construction Industry to develop training standards around silica dust safety. These will be submitted to the Australian Industry Skills Committee (AISC) for approval to Skills Ministers and form part of the national construction training package used by training organisations across Australia.

"After a growing number of cases, SafeWork NSW approached the AISC and recommended that construction training packages include dedicated training components around silica safety because, at the moment, there are no units of competency in the national training package that reference silica, although a number of them do contain awareness of hazards, including silica."

As of late 2021, the silica project has progressed through the consultation process. It will produce four units of competency, focused on knowledge, safe handling and risk management for new entrants through to supervisors.

In Safe Work Australia's guidelines for removing silica dust in work, it says that companies can eliminate silica dust at the source by eliminating the processes that generate dust.

For example:

- Adopting production processes that generate less dust - for example any wet method is likely to generate less dust than a dry one;



It's estimated that around 230 Australians a year develop lung cancer due to past exposure to silica.

- Treating the dust at the point of generation, as this is more effective than capturing airborne dust; and
- Treating the dust on its transmission path using dust suppression techniques - for example water sprays, chemical additives, local exhaust ventilation (LEV), vacuum. If it is reasonably practicable, eliminate the silica containing products from your workplace.

"Silica poses a very serious risk when it's being worked with in ways that are unsafe, especially with products that contain higher concentrations of respirable crystalline silica like engineered stone," Charles explains.

"We're seeing businesses conducting safer work practices around silica and doing the right thing with regard to wet cutting and wearing the appropriate respiratory protective equipment and this awareness just wasn't there 20 years ago."

He adds that while the industry has come a long way, there is still work to be done in terms of hazard awareness and making sure that we eliminate silica-related deaths in Australia. ▲



*Overseas models shown.



PEUGEOT
PROFESSIONAL
FOR THE DAY AHEAD

THE NEW PEUGEOT VAN RANGE

Flexible Payloads - Uncompromising modularity
- Fit for all missions

Contact your Peugeot Professional dealership today

*Some features and specifications may vary, check with your authorised Peugeot Professional dealer.



MIKITANI'S RULE OF 3 AND 10: KNOW WHEN TO HIRE

AS YOUR BUSINESS GROWS AND YOU HIRE NEW STAFF, SOMETIMES EVERYTHING JUST STOPS WORKING. **JAMES BURGESS** EXPLORES WHY HIRING PAST MULTIPLES OF 3 AND 10 COULD BE THE CULPRIT.

Are you in the middle of hiring more staff? If so, then you might want to consider whether your recruits will break your existing business infrastructure because, according to the wisdom of Hiroshi Mikitani, they will.

Mikitani is the CEO of one of the world's largest retailers and the pioneer of the 'Rule of 3 and 10', which states that dramatic changes occur when the number of staff a business employs passes a multiple of, you guessed it, 3 or 10.

In other words, when a company grows from 1 to 3 employees, it will have changed significantly enough that its existing practices and procedures will no longer fit. The same will happen again when it reaches ten employees, then 30, then 100, then 300, and so on.

What's interesting is just how applicable Mikitani's rule is for mapping the growth of an plumbing business. Think about your business when you worked for yourself compared to when you finally hired a couple of guys. An increase in staffing probably meant you had to restructure your processes and create procedures that ensured your new hires worked effectively.

Now think about what happens when you reach ten employees. At this point, you'll probably have most of your time devoted to managing people rather than completing jobs. You'd also need admin staff, a set of procedures for them, and maybe even a completely new system for managing your guys in the field as you move off the tools and into a permanent management role.

For trade businesses intent on growing quickly, it can be all too easy to blow right past one of the 3 or 10 milestones without even realising that your hiring tactics have put your

<p>The start & stop of growth</p> <p>Example strategies for addressing the Rule of 3 & 10 in your business.</p> <p>AroFlo Job management. Sorted.</p>	<p>Growing from 1 - 3 staff</p> <p>Stop trying to do everything yourself. Start hiring new staff with clear roles.</p> <p>So you do everything and you have control? Then when you hire people, what control should you handover? Make sure everyone has a clear role. People should be doing the work that's best suited to their skills.</p>	<p>Growing from 3 - 10 staff</p> <p>Stop (only) working in your business. Start working on your business too.</p> <p>You need to become a coach and a mentor. Begin to establish hierarchy (e.g. a second in charge). You'll probably also benefit from having one or two full time office staff to manage operations and accounts.</p>
<p>Growing from 10 - 30 staff</p> <p>Stop trying to keep track of everything in your mind. Start using a system of record.</p> <p>A System of Record is where you put all the critical information (customers, jobs, invoices, etc). This might include job management software like AroFlo, your accounting software or a CRM.</p>	<p>Growing from 30 - 100 staff</p> <p>Stop creating issues through lack of foresight. Start assuming you'll keep growing.</p> <p>If you're at 30 staff, you can grow to 100. You need to plan for that growth. Ensure your software doesn't have user limits, your office has ample space and cash flow is good for payroll.</p>	<p>Growing from 100 - 300 staff</p> <p>Stop trying to extract more work from one market. Start looking for green pastures.</p> <p>More growth isn't always easy - perhaps the remaining customers aren't a good fit for you. Look for ways to transfer your successful business model into new markets (regions, products, services).</p>

internal infrastructure at risk. But the reality is that many trade businesses must grow rapidly to stay competitive. Meaning they simply don't have the time to constantly reassess their processes and procedures to make sure they still fit an expanding business.

That's why it's essential to understand the kinds of challenges you'll face when you arrive at the first few milestones and what happens as you reach the double digits and beyond.

Think of the 1 to 3 staff milestone as what shapes your business. It's where you must move away from an 'I'll do everything' mindset to a place where you delegate tasks and explain what needs to be done to your employees instead of doing it yourself.

The jump from 3 to 10 staff and onwards will likely call for more drastic changes to your internal infrastructure. Shifting around job roles, establishing a senior hierarchy, and of course, delegating parts of your role to others in the business as you get busier.

From here, every new milestone will require more sweeping changes to your company structure and a bigger revamp

of the processes you rely on every day.

To make transitions easier, you can always integrate a job management software like AroFlo into your business during a process and procedure change. By digitising your staff management and automating tasks like invoicing, quoting and scheduling, your business will be more resistant to process breakdowns. A digital platform like AroFlo additionally helps futureproof your systems and lets you create workflows that won't break down as easily if your hiring practices push you past your next threshold.

On that note, if your business has already passed a threshold, don't stress too much! There's always time to get things back on track. ▲

AroFlo is an Australian job management software developed for tradies and packed full of all the tools you need to manage jobs, invoices, timesheets and more. Check us out at aroflo.com and get your operations sorted.

RENAULT TRAFIC

it's my business
it's my van



**"When you need a van to deliver
its top notch."**

"We rely on Renault Trafic to deliver freight safely. There's loads of room for bulky items and plenty of anchor points for securing cargo. We've got plenty of tech inside and it keeps the drivers comfortable. They're really fuel efficient, and we get plenty of k's out of a tank. When you need a van to deliver its top notch."

Daniel, Team Tank Logistics

renault.com.au





TRANSPORT

with Tony O'Kane



ISUZU D-MAX RANGE STRENGTHENED BY NEW 1.9L DIESEL BASE MODEL

With months-long waiting lists for some of its more popular variants, the Isuzu D-Max is one of Australia's favourite utes - particularly in the trades-oriented 4x2 utility category. In the 4x4 category it's still on the finishing podium, with a solid third place behind the dominant Ford Ranger and Toyota Hilux, but new arrivals to the D-Max lineup could strengthen Isuzu's pull with ute buyers and close the gap.

Fleet operators will be most interested in a new offering at the bottom end of the D-Max family, with a new 1.9L turbo diesel engine taking over as the entry-level member of the

bunch. Available only as a 4x2 cab chassis, with a choice of manual or automatic transmission, the D-Max SX 1.9L produces 110kW and 350Nm and has been designed with durability and lower operating costs in mind.

It's a step down in power and torque versus the 140kW/450Nm 3.0L turbo diesel inline four of the previous entry-spec D-Max SX 4x2, but with that variant jumping in price from \$29,990 drive-away to \$33,200 before on-roads, the new 1.9L (which takes over that \$29,990 drive-away price tag as a manual) does at least allow Isuzu to preserve a keen sub-\$30K entry point.

Strip away the drive-away incentive, and regular retail pricing is \$31,200 for the 1.9L manual, or \$33,200 for the 1.9L auto.

Beyond purchase price, there is another advantage to the 1.9L D-Max SX: payload. Rated to carry up to 1,405kg as a manual or 1,380kg for the automatic, the 1.9L boasts a fair payload advantage against its 3.0L equivalent, which is rated for 1,305kg and 1,300kg for the manual and automatic respectively.

That advantage gets flipped

when it comes to towing. Only rated to lug 2,800kg on a braked trailer with the manual or 3,000kg with the auto, the D-Max SX 1.9L lives in the shadow of the 3.0L's 3,500kg max tow capability. Fuel economy is a claimed 7.0L/100km - just 0.2L/100km less than the equivalent 3.0L's average figure. As for service costs, the smaller engine comes out slightly ahead with scheduled maintenance over seven years tallying at \$3,223 - \$300 less than the 3.0L.

The higher-grade LS-M crew cab chassis and LS-U crew cab chassis provide an extra row of seats as well as a longer list of standard equipment, and are new to the range for 2022, priced at \$52,800 and \$58,200 respectively and only available as 4x4 automatics with the 3.0L engine.

Want even more? Leather upholstery, power-heated seats (power-adjustable), and a leather-upholstered steering wheel set the 'plus' apart from the regular LS-U grade, adding to the 9" infotainment package, premium eight-speaker audio, dual-zone air conditioning, keyless entry and ignition, switchable 4x4 and locking rear differential. ▲



PEUGEOT PARTNER, BOXER AND EXPERT UPDATED

Peugeot Australia has revamped its commercial van range with new permanent variants, improved financing options and a revised grade structure that aims to make it easier for buyers to select the right van for their business needs.

As far as new metal is concerned, Peugeot has made the Partner Long with an automatic transmission and the Expert Long with a manual transmission permanent addition to its commercial vehicle line-up. That sees the Partner range swell from just four variants to seven over a price spectrum from \$26,990 to \$36,980, with three of those being long-wheel base bodystyles. Six of those seven are automatic, and all are 1.2L turbo petrols - the sole diesel option that was previously available has been dumped.

A clearer range structure should also help operators and owners choose the right variant, with the City grade opening the Partner range followed by the Pro and capped off by the Premium, with a corresponding increase in standard equipment. On short-wheelbase variants a passenger-side sliding door is standard-issue, while long-wheelbase equivalents receive dual sliding doors - as well as an upgrade in payload to 1,000kg versus the SWB's 660kg.

Moving up to the Pro nets dual sliding side doors on all variants as well as a centre seat, plus an electronic park brake, higher-featured infotainment system (with smartphone mirroring), a reversing camera and a safety package that brings automatic emergency braking, a forward collision warning, lane departure warning, lane keep assist and speed sign recognition. The Partner range opens at \$26,990 before on-roads and tops out at \$36,980.

Opting for the Premium adds mostly cosmetic items such as a leather-upholstered steering wheel, 16" alloys, power-folding wing mirrors and keyless entry with a push-button starter. All Partners get a steel bulkhead behind the front seats to separate occupants from cargo, and 180° rear barn doors at the rear.

While the Partner moves ahead with an all-petrol strategy, the mid-sized Peugeot Expert range is an all-diesel proposition. Like the Partner, the Expert also adopts the new variant structure of City, Pro and Premium, but adds a limited-edition Sport grade for owner-operators wanting a less utilitarian van for workday AND weekend duty, as well as a smidge more power and torque. With four short-wheelbase and three long-wheelbase offerings spread across four specifications levels, the City, Pro and Premium take power from a 2.0L turbo diesel with 110kW and 370Nm with either a six-speed manual or eight-speed auto, while the Sport is based on the short-wheelbase bodystyle, only comes with the eight-speed auto, and produces 130kW/400Nm from its 2.0L diesel.

The price of entry to the Peugeot Expert begins at



\$38,990 for the short-wheelbase Expert City manual, rising to \$49,990 for the Expert Sport.

Meanwhile the large Boxer van carries on as a single-variant offering, now aligned with the 'Pro' specification level. Retailing at \$48,990, the Boxer Pro is strictly available in long-wheelbase form with a 120kW/310 2.0L turbo diesel and a six-speed manual transmission. Payload falls slightly, though at 1.59 tonne it's still capable of carrying a heavy load within its cabin.

To help get buyers across the line, Peugeot Australia has also introduced a robust set of financing options, along with a guaranteed future value scheme to 'lock in' residual values. ▲

TESLA CYBERTRUCK MIGHT NOT COME TO AUSTRALIA - BUT ITS BROTHER MIGHT

It's rare that a commercial vehicle will get car enthusiasts whipped up into a frenzy, but the Tesla Cybertruck has been doing exactly that since it was first revealed to the world back in 2019.

Since then, the hype train has run out of puff. A production-ready version of the concept that was revealed in 2019 has yet to eventuate, and issues ranging from production difficulties at Tesla's US facilities to interruption from the global pandemic have all been cited as reasons why the Cybertruck has been delayed. Production was originally slated to begin in late 2021, but here in 2022 there's no production timeline in sight - Tesla has simply stopped making promises around the Cybertruck's introduction.

But worse still, it's emerged that Tesla may not even sell the Cybertruck in Australia, with the vehicle's size (it's expected to be a full-size pick-up in the same vein as a Ford F-150 or Chevrolet Silverado), safety concerns around the Cybertruck's hard-edged styling and extreme demand in the USA cited as reasons why the Australian market - and basically every other market outside North America - won't get a look-in. For those Australians

who've already put a deposit down (Tesla opened the reservation book immediately after the Cybertruck concept's 2019 reveal, and it's still open at time of publishing), that's a bit of a problem.

A solution may be just around the corner though. Reports indicate that Tesla is considering a second pickup/utility model, one that will be smaller than the Cybertruck and thus more suitable for markets like South America, Europe, South-East Asia and Australia. Sized similarly to the Toyota Hilux and Ford Ranger - both of which were Australia's top-two highest-selling vehicles in 2021 - a smaller Cybertruck derivative would likely be a better seller in markets like ours than the full-size original anyway.

And that would be in line with Tesla's experience with their passenger cars, with the mid-size Model 3 sedan outstripping the sales of the large-sized Model S sedan in Australia by a considerable margin.

But would a purely-electric utility make sense for the Australian market? That's up to the market to decide, but the market may have already spoken. Sales of the Renault Zoe, Australia's first purely commercial electric vehicle



(albeit a fairly small one both in size and range), have not revealed a great desire for battery-electric vehicles in the commercial sector, and concerns about ease of charging, usable range and over-capitalisation are often cited as reasons why business owners are reluctant to make the switch.

Yet, the tide is changing. The Rivian electric ute is on its way to Australia, and a wave of diesel-electric hybrid utes from Toyota, Ford and others are also expected to surface in the not too distant future. Whether the commercial sector is ready or not, electrification is certainly on its way. ▲





VAN SAFETY AGAIN UNDER THE SPOTLIGHT

Just over a year after first promising tighter scrutiny of safety standards within the commercial van segment, Australia's independent crash safety body ANCAP has released its second study of load-lugger crashworthiness.

And with the pandemic boosting demand for parcel delivery services, the size of van fleets in this country have skyrocketed by a similar percentage.

But while being a forgotten category in the past, where safety standards were often seen as secondary to maximising payload and cubic capacity, modern vans appear to be stepping up their safety credentials in a big way.

The Hyundai Staria Load, for example, earned the first Platinum rating for crash avoidance technology in ANCAP's study, as well as full marks in the side-impact and an overall five-star safety rating.

The Mercedes-Benz Vito, Toyota Hiace and Ford Transit were also singled out for their solid performance in crash avoidance performance, with the Vito in particular getting recognition for improving its previous score in that area of 23% to 61%.

With fleet operators beginning to demand greater levels of safety for their drivers, standards across the van segment are improving. However, ANCAP's study did reveal some vehicles with poor crash avoidance performance. The models which earned a "not recommended" rating for crash avoidance technology were the Mitsubishi Express, Renault Trafic and Renault Master.

Besides the crash avoidance study, many commercial vehicles are also excelling in broader crash safety testing. The aforementioned Staria Load is one, but other recent earners of a five-star crash rating include Volkswagen's box-fresh Caddy as well as the Chinese GWM Ute. ▲

MAZDA BT-50 CREEPS UP IN PRICE WITH UPDATE

Mazda's mainstay commercial vehicle, the BT-50, has been gifted its first major update for 2022, with key changes to specification, an additional SP grade, a new 1.9L turbo diesel option and modest price rises across the board.

The arrival of the 1.9L option mirrors that of the Isuzu D-Max mentioned earlier - for the uninitiated, the D-Max and the BT-50 are platform cousins and share much of their under-the-skin hardware.

And that means the critical metrics are largely the same too, with 110kW and 350Nm on offer from the 1.9L. There's a key difference, however: while Isuzu confines the 1.9L engine to the D-Max SX grade, Mazda limits its version of the 1.9L to... the BT-50 XS.

There's actually other - far more meaningful - differences, and they're ones that could nudge buyers in Mazda's direction rather than Isuzu's. While the Isuzu D-Max's budget-friendly 1.9 is only available as a RWD single-cab chassis, the Mazda BT-50 XS 1.9L can be had as either a 4x2 single-cab chassis, 4x2 dual-cab pickup and even a 4x4 dual-cab pickup, and all come with a six-speed auto by default.

There's a catch, though. The Mazda option will cost you more, with the BT-50 XS 1.9L 4x2 single-cab listed with a \$38,490 driveaway price. The XS 4x2 dual-cab is a \$43,990 proposition, while the XS dual-cab 4x4 sits at \$51,490 driveaway (though that still makes it the most affordable auto-equipped dual-cab 4x4 BT-50).

The BT-50 SP is a new grade for 2022 and comes with the established 140kW/450Nm turbo-diesel inline four with either a six-speed manual or six-speed automatic. A dual-cab bodystyle and dual-range 4WD driveline is standard on the SP, along with, 18" alloys, a tub liner, roller tonneau cover, a gloss black sports bar and wheel flares, metallic grey roof rails and heated front seats. ▲





UTES DOMINATE SALE, TRADIES CONTINUE TO FAVOUR DUAL-USE VEHICLES

The popularity of the humble dual-cab utility continues to swell as tradies and business owners - buoyed by the instant asset write-off scheme - increasingly opt for vehicles that can do double-duty as workday hacks and weekend family transport.

In all, the commercial vehicle segment tallied 205,597 vehicles, with roughly seven eighths of that being made up of vehicles in the 4x2 and 4x4 utility category, both pick ups and cab chassis. It's the 4x4s that are doing the bulk of the heavy lifting too, with over 150,000 sales in that sub-category alone, showing that buyers are more than willing to deal

with the elevated price premium of a 4x4 to gain the off-road capability that comes with it.

However, that capability isn't necessarily one that's being sought for the work site. Rather, the recreational aspect of 4x4 utilities has been a compelling lure for sole traders and employees purchasing through novated leases or user-choser fleets, with day-to-day driving easily accomplished without locking the front hubs while weekends and holidays see owners take their work utes far off the beaten track.

Other reasons are also driving uptake. Circa one-tonne payloads are common and the rugged ladder frames of a 4x4 pick up are well suited to carrying lots of weight, whether as cargo, tools or in the form of a service body or similar. Towing capacity is another frequently-cited reason for purchase, with the bulk of 4x4 dual-cabs able to tow at least 3.0 tonnes on a braked trailer, with max tow ratings of 3.5 tonnes also very common. Not only is it handy for towing plant equipment to a worksite, but those tow capacities are also awfully

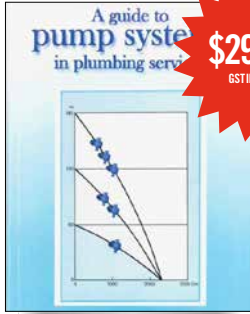
useful for taking a boat to the ramp or a caravan across the Nullabor.

The Toyota Hilux was again Australia's most popular individual model, racking up 52,801 sales across all states and territories in 2021. Its nemesis, the Ford Ranger, wasn't too far behind the Hilux with 50,279 sales across the year, and also capping off the year as the top-selling vehicle overall for the month of December.

Elsewhere in the top ten for December 2021 were the Isuzu D-Max and Mitsubishi Triton, though both trail the Ranger and Hilux by a wide margin. However, this year will be an interesting one with the arrival of the new-generation Ford Ranger, which has caught plenty of attention for its improved pallet-friendly tub packaging, attractive styling, thoroughly modernised interior, and, crucially, the availability of a grunty turbo-diesel V6 for the first time.

Provided Ford Australia can secure enough production to take care of demand, the new Ford Ranger could very well snatch the crown of the Hilux's head as the country's most popular vehicle. ▲

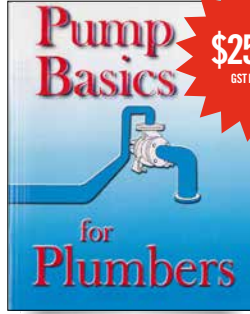




\$29.95*
GST INCLUDED

A GUIDE TO PUMP SYSTEMS IN PLUMBING SERVICES

Specifically written for plumbing designers, practitioners, consultants and specifiers of plumbing installations and equipment involving the use of pumps for all classes of buildings and construction and includes information on pump systems associated with water supply, rainwater, harvesting, bush fire protection, sewage, disposal by pumping, special purpose installations and dewatering systems.



\$25.95*
GST INCLUDED

PUMP BASICS FOR PLUMBERS

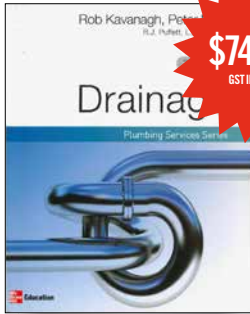
A quick reference and solution handbook. Solutions for: Building, Fire, Mechanical Services, Air Conditioning & Heating, Irrigation, Pools & Spas and Wastewater. This handbook covers broad topics such as pump types and suitability. Emphasis is directed mainly on centrifugal pumps and their characteristics including capacity, head speed, power and efficiency, supported by charts, tables, formulas and graphs. There is a useful trouble-shooting chart and installation hints.



\$59.95*
GST INCLUDED

WATER: PLUMBING SERVICES SERIES 3RD EDITION

Water has been completely revised and updated to meet the requirements of the CPC08, Construction, Plumbing and Services Training Package. This is an in-depth guide to the storage and transmission of water, water materials, hardware, services and installation of hot and cold systems. This is one of the most comprehensive guides to water and water management in the country.

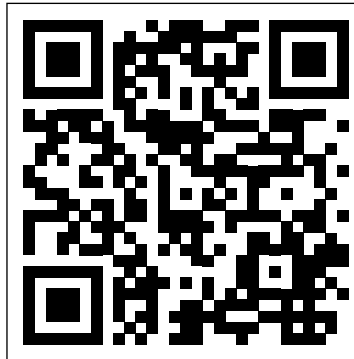


\$74.50*
GST INCLUDED

DRAINAGE PLUMBING SERVICES SERIES 3RD EDITION

Drainage – Plumbing Services Series 3rd edition is an important entry into the world of drainage and sanitation history and maintenance. The text provides an overview of how to deal with the collection, treatment and disposal of waste. Common treatment methods and alternative disposal methods are explored in depth and with astute attention to principles, practices and regulations. This latest edition is an update of earlier editions prepared by Bob Puffet and Len Hossack and brings the text into the 21st century. The basis for this lies in AS/NZ3500 and references maximum lengths, grades and depths from this document.

TRADE **STUFF**
THE ONLINE STORE FOR TRADIES



ORDER ONLINE OR
FREECALL 1800 623 214

USE YOUR PHONE
CAMERA TO SCAN THE
QR CODE TO VISIT
WWW.TRADESTUFF.COM.AU



SUBSCRIBE NOW

PLUMBING CONNECTION MAGAZINE SUBSCRIPTION

Plumbing Connection is Australia's peak business-to-business magazine servicing all sectors of the plumbing industry. We cover all aspects of the plumbing industry and provide a platform for the industry to understand emerging trends, technologies and opportunities the market has to offer.

1 YEAR (4 ISSUES) \$45.00*
2 YEAR (8 ISSUES) \$79.00*
3 YEAR (12 ISSUES) \$118.00*

*PRICES ARE IN \$AUD AND INCLUDE GST. ALL PRICES CORRECT AT TIME OF PRINTING. PRICES SUBJECT TO CHANGE WITHOUT NOTICE. LIMITED STOCK AVAILABLE, SPECIAL ORDERS CAN TAKE 3-4 WEEKS FOR DELIVERY.

LANELLA MEDIA, UNIT 2/18-22 LEXIA PLACE, MULGRAVE VIC 3170
FREECALL 1800 623 214 | WWW.TRADESTUFF.COM.AU



DELIVERED DIRECT TO YOUR DOOR



BOSCH

Hot Water & Heating



Go with the brand Australian Plumbers trust.

- ▶ Built to last
- ▶ No power required
- ▶ No battery replacement required
- ▶ No flow restrictor required
- ▶ Pilot and Hydro models available

www.bosch-climate.com.au

Scan QR code to check
out our Bosch mechanical
commissioning videos



BOSCH

Hot Water & Heating

Experience German quality, reliability and comfort with Bosch Hydronic Heating.



Scan QR code to check
out our Bosch boiler
commissioning videos

www.boschhydronicheating.com.au