

REGULATION ROUNDUP

ISSUE 56 | September 2025

A bulletin for Electrical, Gas and Plumbing industry workers brought to you by the Office of the Technical Regulator

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of Regulation Roundup.

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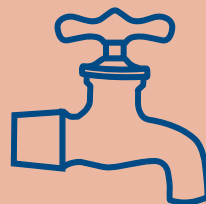
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FOR TECHNICAL ENQUIRIES:

Electrical

P: (08) 8226 5518 | (8:00am – 4:30pm)

Gas

P: (08) 8226 5722 | (8:00am – 4:30pm)

Plumbing

P: 1300 760 311 | (8:00am – 4:30pm)



Government of
South Australia

be energy safe

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Message from the Technical Regulator

Welcome to issue 56 of Regulation Roundup.

Once again Regulation Roundup is full of interesting and informative items designed to help the trade build safe installations. Regulation Roundup is key to our aim of providing information and guidance before resorting to enforcement activities. OTR strives to encourage compliance through our educational activities. With this in mind, we encourage you to make contact with the Office if you are unsure about the requirements set out in the Standards. Chances are that you are not the only one having difficulties.

Once we become aware of any issues, we can share it with the trade at one of the Roadshows, or as a publication in Regulation Roundup.

Once again, I trust you will take the time to have a read of Regulation Roundup, there is always something new to learn.

We hope you get a lot out of this edition.

Robert Faunt, Technical Regulator

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CONSUMER AND BUSINESS SERVICES

BEWARE ROGUE TRADIES CAMPAIGN GETS TRACTION

Thousands of South Australians are engaging with the Consumer and Business Services (CBS) campaign that's currently running to help consumers avoid hiring a rogue tradesperson.

Since the campaign launched on 14 May 2025, consumers have been responding to promotions on social media and other publications, reading more about some simple steps they can take to avoid a disaster when hiring a builder or tradesperson.

Campaign promotions have already reached more than 600,000 South Australians, advising them to:

- do their research before hiring a tradie by checking the tradie's licence
- search for independent reviews
- always seek three quotes – even for urgent work – to compare prices.

In addition to online promotions, magnets and brochures highlighting key messages from the campaign have been distributed by CBS staff at community events. These resources and other campaign materials are available at cbs.sa.gov.au/rt-materials with more information available at cbs.sa.gov.au/campaigns/beware-rogue-tradespeople.

CBS has run similar 'use a licensed tradesperson' campaigns in previous years, but this year's campaign took on new urgency after a sharp spike in complaints about dodgy tradies to the consumer watchdog, with hundreds more complaints received than usual. Consumers complained about being charged excessive amounts, having work done that didn't seem necessary, being pressured to sign a contract on the spot, and shoddy work. Putting the spotlight on these practices and alerting consumers to the risks of hiring someone who isn't licensed or has a reputation for ripping off consumers, will help consumers avoid a rogue tradie nightmare next time they need to hire a builder, plumber, gas fitter or electrician.

In addition to consumer education, CBS is investigating recent reports of concerning business practices in the trades sector. These investigations are continuing.

Anyone with information about tradespeople operating without a licence or outside the scope of their licence, or tradies not complying with other aspects of consumer protection laws, should report the details to CBS via the [online CBS complaints form](#). Where investigations uncover unlawful practices, tradies could face enforcement action such as court action, public naming, an expiation or written warning.

Honest and hard-working tradies can be assured that CBS is serious about reining in those who seek to exploit consumers and ignore their obligations and licensing and consumer protection laws.

Avoid rogue tradies

- **Get 3 quotes & a written contract**
- **Don't pay too much in advance**
- **Check their licence on the CBS register.**



Scan the QR code or visit

www.cbs.sa.gov.au/find-a-licence-holder

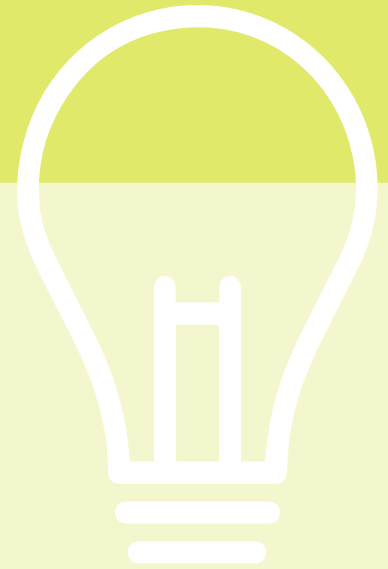
Avoid a rogue tradie taking the pipes out for an astronomical amount!

- **Get 3 quotes & a written contract**
- **Don't pay too much in advance**
- **Check their licence on the CBS register.**



Scan the QR code or visit

www.cbs.sa.gov.au/find-a-licence-holder



LECTURER ELECTRICAL TAFE SA – INCLUDING INITIATIVES FOR THE TRADIE TO TRAINER PROGRAM

The need for ever increasing numbers of electrical tradesmen is becoming more and more apparent in our current market. Our industry is currently experiencing a shortage of quality and qualified workers. The answer to this ever-increasing demand is to ensure that more apprentices are trained to a high standard on the job and through their studies at trade school.

To ensure that learners have the best possible outcomes, TAFE SA invests in its lecturing staff by attracting the best possible candidates with relevant hands-on experience in the industry, along with educational qualifications and on the job training. As our apprentice numbers grow, so does the need to attract new qualified lecturers to teach these learners. TAFE SA is also looking for new, motivated lecturers to join their workforce at our Tonsley and Mount Gambier Campuses.

So, what qualifications do I need to have to be a TAFE SA lecturer?

- Unrestricted electrical license
- Certificate IV in Training and Assessing (TAE 40116 or 40122) – don't already have this? – keep reading
- Five years of industry experience

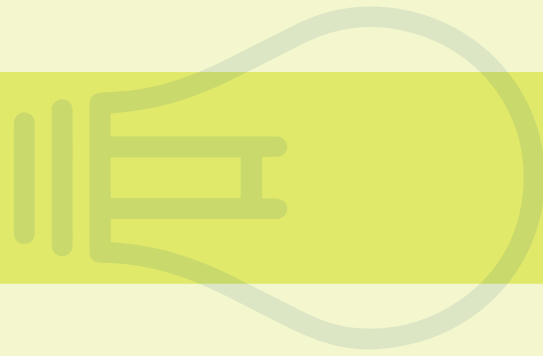
TAFE SA has recognised that it is not always possible to study and work full time, so a program called “Tradie to Trainer” has been developed. This program allows new trainee lecturers to be employed on a full-time basis and undertake study, and to develop their lecturing skills under the guidance of experienced mentor lecturers. At the completion of this program successful trainees will graduate to the role of Lecturer at TAFE SA.

TAFE SA will support through the completion of the Certificate IV TAE 40122 qualification through:

- The full Certificate IV TAE can be completed within 12 months of starting employment with TAFESA at no cost
- One day a week is dedicated to course work for the Certificate IV TAE
- 3 days a week mentored by experienced lecturers in class
- One day of induction courses for the first month
- Personal mentoring from a senior lecturer
- Initial 12-month contract with the opportunity to apply for a permanent position once the Certificate IV is complete, as they become available

If this is something that interests you, please send your resume to ashley.clarke@tafesa.edu.au and we can arrange a chat.

TAFE SA is also looking to recruit lecturers that already hold the required qualifications, so if this appeals to you as well, please send your resume to the above email address as well.



Residential flexible exports offered across SA!

On 17 July 2025, Flexible Exports became available to all residential customers across South Australia. The Flexible Exports connection option allows exports of up to 10kW per phase, automatically adjusted to maximise exports based on network conditions.

Existing residential solar customers will remain on their current export arrangements until they upgrade or replace their system. At that point, customers will need to choose between a flexible export plan or a lower fixed export connection.

How do I know if my customers are eligible for the Flexible Exports offer?

You can find out more about individual export capacity available for customers by entering their NMI or address into the [Flexible Exports Eligibility Checker](#). You will be presented with historical Flexible Exports performance at the nominated address to assist in your customer's decision-making.

What does this mean for Single-wire earth-return (SWER) line customers who generally live in regional areas?

In a change to our generation connection standard [TS129](#), SWER customers will be offered a limit of 10kVA installed solar and 10kVA battery capacity, allowing you to install more solar and battery than before. In order for customers to have the best experience the meter isolator requirement becomes more important for SWER customers, and we will be undertaking site audits to ensure installation compliance. Exports in these areas may be limited more than other customers; however, you can still make the most of your larger installation by self-consuming the energy it generates.

[Learn more on our website.](#)

Where we expect very little-to-no export capacity for a site

There are a very small number of properties where the level of export capacity will be 0kW.

In these instances, it is even more important to ensure systems are sized to meet customer self-consumption needs. For more information about low- or no-export sites, feel free to reach out to our industry enquiries team on [13 12 61](#) (available during office hours Monday – Friday from 8am to 5pm).

Do I need to install things differently for Flexible Exports sites?

All installations will need to comply with the Government of South Australia's [Dynamic Export Requirements](#). For Flexible Exports sites, you need to:

- Install an inverter and import/export monitoring device as per the inverter manufacturer's installation guides.
- Ensure all exporting solar inverters are under site-wide export control.
- Ensure you have a right sized meter isolator installed as per SA Power Networks' Service and installation rules – please call us if you are unsure what is required at your site
- Close out the install on the '[installations](#)' tab within the [Portal](#).
- Configure and register the system with SA Power Networks as per the inverter manufacturer's guides and successfully complete the capability test.
- Download a copy of the recently updated [Flexible Exports Installer Checklist](#) and keep it handy when you prepare and install your next solar system with the Flexible Exports option.
- Additional requirements during the process will apply to the SWER and low levels of service sites

A failed registration and capability test will result in the application being non-compliant and the customer's export will be limited to their default limit (0kW or 1.5kW).

Want to find out more?

Check out industry information for [Solar Flexible Exports](#) and [CER compliance](#).

Phone us on [13 12 61](#) (during office hours Monday – Friday from 8am to 5pm), or

Email us at customerservices@sapowernetworks.com.au



MATES



THE BLUEPRINT FOR BETTER MENTAL HEALTH AND SUICIDE PREVENTION

MATES in Construction SA empowering workforces to build safer, healthier sites

We all know the importance of a safe worksite – but safety isn't just physical. In fact, workers in the construction industry are 8 times more likely to die by suicide than from a workplace accident.

Psychosocial safety is critical in high-pressure industries like construction, mining, energy and resources, where workers can face long hours, remote conditions, and intense demands. Regulatory changes and new Codes of Practice make it clear that organisations must step up to better manage psychosocial hazards such as bullying, fatigue, isolation and job insecurity.

At MATES SA, we've spent years on the ground – shoulder to shoulder with workers – supporting mental health, preventing suicide, and helping to build stronger, safer worksites. But real, lasting change doesn't just happen on-site. It starts with culture, leadership and systems that genuinely prioritise people.

It can be confusing to know where to start to build a mentally healthier workplace. That's why initiatives like the **Blueprint for Better Mental Health and Suicide Prevention** are changing the way businesses think about safety.

MATES IN CONSTRUCTION

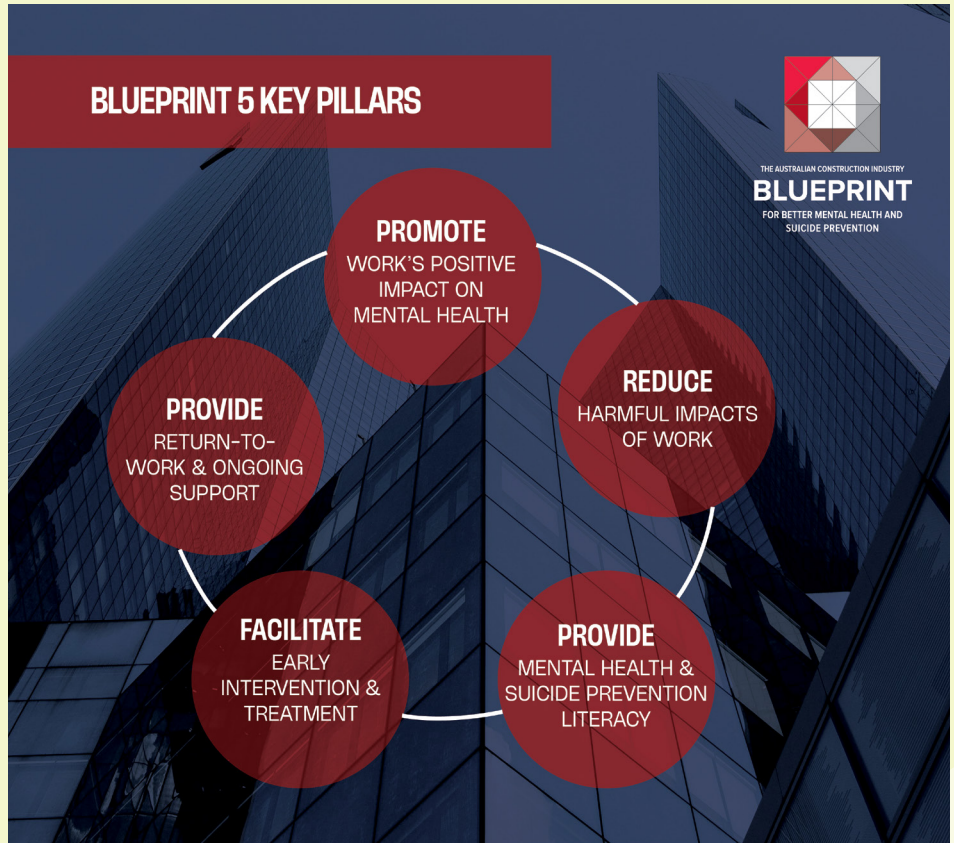
A practical program designed by industry, for industry

The Blueprint is a national, evidence-based framework that encourages organisations to implement a 5-pillar, integrated model for mentally healthier work:

In 2025, thanks to funding from **Preventive Health SA**, **MATES SA** is rolling out the Blueprint program provide organisations with support **free of charge** to assess their mental health strategy, implement research-backed changes, and embed a culture of psychosocial safety.

The Blueprint program is not a poster on a wall or a tick-box exercise. It's a structured program that includes:

- an organisational audit to identify risks and gaps,
- the nationally recognised People at Work psychological health and safety survey to understand the worker perspective, and
- workshops with your people to co-design improvement strategies tailored to your site or organisation.



Get involved

Being involved in the Blueprint program can help businesses identify and address factors that could cause harm, and in doing so, demonstrate compliance with WHS obligations as well as improve wellbeing, productivity, retention, and tender competitiveness. It sends a powerful message to workers, clients and partners: we care about people, and we are ready to lead.

Whether you're just starting to explore psychosocial safety or ready to lead from the front, the Blueprint program offers a proven way forward. If you'd like to learn more, visit the **Blueprint website** www.constructionblueprint.com.au or reach out to

Chloe Dierickx, Organisational Health and Wellbeing Consultant cdierickx@mates.org.au.



Electrical Bulletin



Meter Installer lockouts – is a sticker a sufficient lockout method

The OTR has recently written a letter to all Electricity Metering Installation Contractors regarding their responsibility to ensure site safety when installing an Electricity Meter.

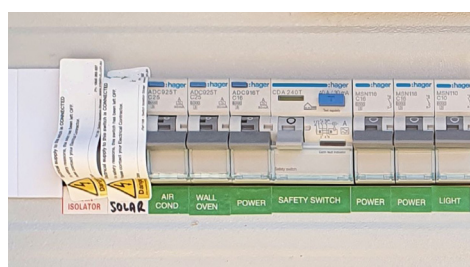
The letter details the requirement to perform a visual assessment of the site for electricity safety and the requirement to make safe if any safety concerns are identified.

This make safe requirement may include the removal of the Main Isolator load conductor/s or removal of the busbar if any cabling is observed to be available to energise with unterminated ends.

As the Electrical Contractor, you are also responsible to ensure that no unsafe cabling / equipment is made available to energise when the Electricity Meter is installed, by not connecting it at the switchboard before the field terminations have been fully completed or leaving out the load connection between the Main Isolator and circuit breakers until the installation is ready to energise.

In multiple Audits we have observed unterminated field cabling that has been inadvertently energised by another contractor looking to energise a socket outlet to run their tools, just by removing the sticker and flicking on all breakers.

This is a major concern for safety of workers and members of the public and if identified to / by the OTR, will result in the disconnection of the premises and enforcement action against the contractors involved.



Fire protective methods for Switchboards

The OTR have recently been involved in a number of structure fire investigations with the Metropolitan Fire Service (MFS). When fire has initiated at these switchboards, it has been able to spread throughout the premises through openings and cable entries. In most cases **Clause 2.10.7 of AS/NZS 3000:2018** has not been applied, resulting in the fire spreading throughout the property.

Clause 2.10.7 states that *“wiring associated with switchboards shall be installed in such a manner that, in the event of a fire originating at the switchboard, the spread of fire will be kept to a minimum”*.

When performing switchboard work, look for openings that are not a close fit (i.e. openings in the switchboard greater than 5 mm). These must be appropriately sealed. If sealing has not been carried out on existing work, inform the customer and document the issue in Part B of the Certificate of Compliance for the owner’s review and action.



Photograph shows where fire has originated at the switchboard and has spread through to the dwelling, as openings weren't sealed.

Modifications and Relocation of Type B Gas Appliances



Licensed electricians conducting work on Type B Gas Appliances should refer to the article “Modifications and Relocation of Type B Appliances” on page (19) in the Gas Bulletin.

Homeowner and occupier prosecuted for unsafe installation wiring under Section 60 of the Electricity Act 1996 (the Act)

Recently, the Office of the Technical Regulator successfully prosecuted a homeowner and an occupier at two separate domestic residences for failing to take reasonable steps to ensure their electrical installations were safe and compliant.

Under the Act, homeowners and tenants must ensure their electrical installations are not only safe but also compliant with applicable standards. This means that any electrical installation work performed within the home or business must be carried out by a suitably licensed electrician. Neglecting this responsibility can lead to significant consequences such as isolation of the electrical supply from the network and the imposition of penalties.

This serves as a reminder to all electricians when they certify and issue an electronic Certificate of Compliance (eCoC) to homeowners and tenants for electrical installation work, any electrical breaches observed during a risk assessment must be highlighted in Section B on the eCoC.

Public Warning Statement – Tapiwa Chidenga

The OTR has issued a Public Warning Statement (PWS) against an electrical contractor regarding unsafe non-compliant electrical installation work primarily associated with solar and battery installations.

Furthermore, the Commissioner of Consumer Business Services (CBS) has imposed a suspension on his electrical licences.

The PWS can also be found on the OTR Public notices page.

<https://www.energymining.sa.gov.au/industry/regulatory-services/office-of-the-technical-regulator>

PUBLIC WARNING: POTENTIALLY DANGEROUS ELECTRICAL WORK

Electricity Act 1996 - Section 62A

I, the Technical Regulator, being satisfied that it is in the public interest to do so, make the following public statement:

Audits recently carried out by the Office of the Technical Regulator on solar PV and battery installations in metropolitan and regional areas have identified potentially dangerous electrical work performed by Tapiwa Chidenga of Taps Electrical Systems Pty Ltd.

In my opinion, Mr Chidenga's installation practices may pose a danger to persons or property associated with electricity or electrical equipment.

Any electrical work including solar and battery installations performed by Mr Chidenga should be inspected and tested by a licensed electrical contractor to verify its compliance with the *Electricity Act 1996* and relevant regulations and standards.

For further information please contact the Office of the Technical Regulator on (08) 8226 5518.

R Faunt
Technical Regulator



**Government of
South Australia**

Licence Disqualification – Lario Brzovic

After a long joint investigation with Consumer Business Services (CBS) electrical contractor Lario Brzovic trading as Adelaide Connections Electrical and Solar has been disqualified from holding an electrical contractors licence and electrical workers registration until further notice.

The grounds for the disqualification were due to the unsafe electrical installation work performed by Mr Brzovic primarily for Photovoltaic solar (PV solar) installations.

The OTR first became aware of Mr Brzovic's unsafe and repeated non-compliant electrical installation work in 2019 after a general electrical audit. Subsequent audits throughout Adelaide Metropolitan and regional locations discovered a pattern of similar noncompliant work with some installations isolated by OTR Authorised Officers due to the severity of the breaches identified.

In February 2025 the South Australian Civil and Administration Tribunal (SACAT) disclosed the findings of the imposed disciplinary action under the Plumbers, Gas Fitters and Electricians Act 1995.

- a) Brzovic is reprimanded; and
- b) Brzovic is prohibited until further order from holding an electrical contractors licence and electrical workers registration; and
- c) Brzovic is prohibited until further order from being employed or otherwise engaged in the business of an electrical contractor; and
- d) Brzovic is prohibited from being a director of a body corporate that is an electrical contractor.

Solar installer convicted for false claims

Following a Clean Energy Regulator investigation, an electrician in South Australia has been convicted and fined for providing false or misleading documents in the Small-scale Renewable Energy Scheme (SRES).

Liam Sheppard pleaded guilty to charges relating to 62 solar photovoltaic system installations. Mr Sheppard falsely claimed to have installed or supervised these installations. In doing so, he submitted false or misleading small-scale technology certificate (STC) assignment forms, along with certificates of electrical safety, to renewable energy certificate agents. The agents relied on this information to improperly create STCs for these installations.

On 3 April 2025, after more than 3 years of legal proceedings, Mr Sheppard was convicted and received a reduced fine of \$3,500 due to his personal circumstances. Mr Sheppard likely incurred costs associated with his legal representation. Receiving such a conviction can severely damage professional reputation and future career prospects. Additionally, it may lead to loss of licenses, exclusion from industry associations, restrictions on international travel and diminished trust from clients.

[Registered agents, installers and designers](#) have significant compliance obligations under the SRES. We will continue to monitor and enforce those obligations to ensure integrity in the scheme.

We have zero tolerance for fraud. Those who do not comply with their obligations will see enforcement action taken against them where it is warranted under our [Compliance, Education and Enforcement Policy](#).

We encourage scheme participants and the public to [report fraud](#) or wrongdoing in our schemes. These reports can be made anonymously using our [online reporting tool](#) or by emailing referrals@cer.gov.au.



Demolition company fined \$140,000 after excavator hits powerlines



27 February 2025

An Adelaide demolition company has been convicted and fined more than \$140,000 after its excavator brought down a 415 voltage overhead powerline, exposing the operator to risk of death or serious injury.

Two neighbouring properties were damaged while electricity to 84 properties was disrupted for about six hours following the incident on 6 December 2022.

Royal Park Salvage Pty Ltd was sentenced in the South Australian Employment Tribunal on 25 February 2025 following a SafeWork SA prosecution.

The company was charged with breaching section 32 of the Work Health and Safety Act over its failure to adequately identify the hazards created by the work and put in place measures to eliminate or reduce the risk.

Royal Park Salvage was engaged to demolish a residential property at Onkara Avenue, Ingle Farm.

This involved removing a number of trees from the front yard of the property, which were underneath a 415V powerline.

Despite a 'spotter' for the excavation work failing to arrive, the operator – who had worked for the company for 25 years – proceeded with the removal of the shrubs.

At about 7:10am the excavator made contact with the overhead powerlines, severing one of them. The operator was unaware of the incident until he was alerted by a nearby resident at 7:17am.

SA Power Networks and emergency services attended the property to make the area safe.

SafeWork SA also attended to begin an investigation, issuing the company with two Improvement Notices before commencing a prosecution.

In handing down his judgement, Deputy President Lieschke found Royal Park Salvage's "existing safety management system was grossly inadequate". *"The result is that an operator was allowed to take serious risks of suffering extreme harm from having to work near live powerlines,"*

Deputy President Lieschke wrote "The known risk of death or serious injury from downing a live powerline was luckily not realised with no one injured, although there was significant property damage and supply interruptions to many neighbours. "However, it is the risk of injury and not the occurrence of an actual injury that is the main consideration."

He recorded a conviction against Royal Park Salvage Pty Ltd, fined them \$140,000, and ordered they pay a Victims of Crime Levy of \$424 and a contribution of \$1210 towards SafeWork SA's legal costs.

Quotes attributable to SafeWork SA Executive Director Glenn Farrell

This incident could so easily have had tragic consequences for the excavator operator and serves as a warning to all contractors working around live powerlines.

The company failed to provide a safe system of work that exposed their worker to a risk of electrocution.

Despite issuing warnings about the dangers of working unsafely near overhead powerlines, SafeWork SA has issued 12 statutory notices at nine worksites since July last year.

Electric Shock Incident List

Shock Source	Cause	Contributing Factors	Injuries	Action to Make Safe
Plant Aquarium.	Water pump.	Sales assistant placed hand in aquarium not realising the water pump was faulty.	Sales Assistant received electric shock to hand.	Pump taken out of service and replaced.
Light Switch.	Damaged mechanism.	Visitor at medical centre went to use rest room and could not see that the light switch was damaged.	Visitor received electric shock to finger.	Electrical contractor replaced light switch.
Air conditioner.	Incorrect isolation.	Emergency services went to remove an air conditioner unit hanging off the roof, but the wrong unit had been isolated.	Worker received electric shock to hand.	Correct air conditioner isolated.
Socket outlet.	Deliberate interference.	Student pushed pens into socket outlet.	Student received electric shock to hand.	Electrical contractor replaced socket outlet.
Electric welder.	Failing to clamp work lead (return) cable correctly.	Welding apprentice did not notice the work lead cable clamp was not secured to effectively complete the circuit.	Received electric shock to arm when leaning on steel work piece.	Workplace reviewed instructions for safe operation of welders.
Pool plant room socket outlet.	Water ingress.	Groundsman went to plug in appliance in plant room, the socket outlet had water inside it.	Worker received electric shock to hand.	Weatherproof socket outlet installed, and work procedures reviewed.
Oven circuit.	Isolation switch.	Full system voltage was present on earthed surfaces because the isolation switch had been installed with active connection contacting steel wall plate and foil wall insulation.	Owner received electric shock to elbow and foot when showering.	Electrical Contractor installed insulating shroud to switch.
Microwave and fridge.	Lighting circuit.	Kitchen appliance socket outlet supplied by unearthed lighting circuit.	Owner received electric shock to hands.	Electrical contractor reconfigured wiring supplying socket outlets correctly.
Solar inverter cabling.	Exposed live connections.	Solar Inverter had fallen off wall and owner went to pick it up and reposition it off of the ground.	Owner received electric shock to hands.	Electrical Contractor isolated all conductors and refixed inverter to wall.
Gate and fence.	Supply neutral corroded in street.	Occupier using metal gate would not realise high resistance neutral in street mains caused electricity to return along the metal fence to the transformer.	Occupier received electric shock to hand.	Network Operator attended and repaired faulty.
Brick wall.	Light sensor.	Owner was cleaning gutters after a storm and touched damp brick wall. Rain had entered light sensor connections tracking along the wall.	Owner received electric shock between hand and foot.	Electrical Contractor removed sensor.
Permanent wiring.	Damaged cable.	Plumber was cutting cable ties and accidentally cut through live cable.	Plumber received electric shock to hand.	Electrical Contractor isolated and repaired cable.
Induction cooktop.	Ignition button faulty.	Full system voltage was present on cooktops ignition button each time it was pressed.	Homeowner received electric shock to hand.	Network operator isolated cooktop until Electrical contractor could replace it.
Powered radio.	Cable insulation defective.	Owner attempted to plug damaged original flexible cable into radio after it had become dislodged.	Owner received electric shock to hands.	Network Operator advised owner not to reuse flexible cord for radio.



Gas Bulletin



LP Gas Requirements



Cylinder Restraint

Appendix J from the AS/NZS 5601.1-2022 gas installations standard provides guidance on cylinder installations and locations, these requirements in Appendix J come directly from the AS/NZS 1596:2014 The storage and handling of LP Gas, the mandatory standard for LP Gas cylinders. Providing these relevant cylinder installation requirements that a gas fitter needs to know in Appendix J from the AS/NZS1596 gives them direction for compliance in these matters without the need to purchase the AS/NZS 1596 as an additional standard to the AS/NZS5601 series of standards.

With regards to cylinder restraint Appendix J.4 (c) requires cylinders that are greater than 25L and less than 200L water capacity must be restrained from falling. And before you ask a 45kg cylinder has a water capacity of 108L approximately.



A recent storm caused damage to a side gate which in turn knocked 2 x 45kg cylinders off balance causing considerable strain on the high-pressure pigtail connections.

Gas compliance plate

Section 10.1 from the AS/NZS5601.2- 2022 LP Gas installations in caravans and boats for non-propulsive purposes requires a gas compliance plate to be securely attached to the body work of the caravan (includes catering vehicles) or boat in a clearly visible location adjacent to the cylinders. The compliance plate must be attached for new gas installations, and modifications of existing installations (including additional appliances or appliance replacements). For each modification of a gas installation an additional compliance plate is required to be attached.

Gas Installations—AS/NZS 5601.2

Gas Compliance Plate

Jurisdiction:

ACT NSW NT QLD SA TAS VIC WA NZ

Type of Installation:

New Installation Alteration-Addition

VIN/HIN No: _____

Gas Compliance Certificate No or Approval No: _____

Date of Test: _____

Tested By: _____ (Contractor Licence No)

This plate shall not be removed once attached.

The above diagrammatical example is to be fitted in conjunction with a submitted electronic Certificate of Compliance. See the link below to the Caravan Industry Association of Australia RVMAP Merchandise catalogue and the order form link

[RVMAP-Order-Form-October-2022.pdf \(caravanindustry.com.au\)](https://www.caravanindustry.com.au/RVMAP-Order-Form-October-2022.pdf)

[RVMAP-Catalogue-October-2022.pdf \(caravanindustry.com.au\)](https://www.caravanindustry.com.au/RVMAP-Catalogue-October-2022.pdf)



LPG Gas Bottle Sizes	Width – mm	Height – mm	Capacity – L
4kg (3.7kg) Gas Bottle Size	340	265	7
9kg Gas Bottle Size (8.5kg gas bottle)	460	310	17
15kg Forklift Gas Bottle Size	305	705	29
18kg Forklift Gas Bottle Size	310	830	35
45 kg Gas Bottle Size	375	1250	88
90kg Gas Bottle Sizes	508	1340	176
190kg Gas Bottle Sizes	760	1350	372
210kg Gas Bottle Sizes	760	1450	411

Location of LP Gas Cylinder Regulator

Although this topic has been covered in previous editions of Regulation Roundup and Roadshows, the OTR is still finding cylinder regulators mounted too low.

Interesting that an outdoor event running for 2 days can have the total installation correct and a permanent installation at a domestic home far from it.

The outlet of the regulator must be above the cylinder valves, this allows any liquid LP Gas that may form to drain back into the cylinder, liquid LPG can damage the regulator diaphragm causing it to become brittle. See Appendix J6 in the AS/NZS5601.1-2022 for cylinder regulator requirements.

The table below gives you the height of cylinders so you can set the regulator up having outlet above the height of the cylinder valve. Cylinders are to be installed on a firm, level, non-combustible base, and not resting on soil.



Non-compliant regulator location, regulator too low.

Ventilation requirements

Gas appliances must be installed in locations with proper ventilation for complete combustion of gas, proper operation of the flue and to maintain the temperature of the immediate surroundings at safe limits, under normal operating conditions.

General requirements for ventilation of gas appliances installed in buildings constructed since September 2013

Since the publication of the of the AS/NZS5601.1-2013 Standard ventilation requirements for appliance installations in buildings that were approved for construction after adoption of the 2013 edition of this Standard stringent ventilation requirements have existed.

The reason, the operation of open flued heating appliances may be compromised by the lack of ventilation and negative pressures. This is more likely to occur with modern buildings designed to meet high thermal efficiency standards because of more effective sealing reducing adventitious openings for ventilation.

Since the publication of the AS/NZS5601.1-2013 Standard and subsequent AS/NZS5601.1 Standards these ventilation requirements apply, these requirements are found in the current Standard under Clause 6.4.6.


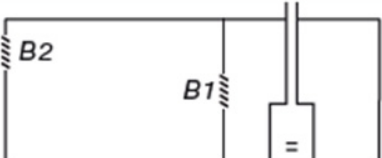
- **0.4 MJ/hr // m³** rule applies to open flued appliances to determine if permanent ventilation is required.
- Current 3 MJ/hr // m³ rule still applies for **flueless appliances other than flueless space heaters** (i.e. cookers) to determine if permanent ventilation is required.
- Ventilation requirements for Flueless Space Heaters remain unchanged.

There are worked examples in Clause 6.4.6.3 to determine ventilation of various appliance scenarios, these scenarios use Table 6.4.6.2 to determine the size of ventilation and their locations. Below is one of the examples from the AS/NZS5601.1-2022, this example determines ventilation requirements for an open flued space heater in a room:

EXAMPLE 2 A 30 MJ/h open flued space heater is installed in a room 5 m long, 5 m wide and 2.4 m high. At least one wall faces directly to outside and the space is to be ventilated by natural means.

- Calculate the room volume, $V = 5 \times 5 \times 2.4 = 60 \text{ m}^3$.
- Divide the total *gas consumption*, T (30 MJ/h), for the *open flued* space heater by the room volume, V (60 m³), to give the value $G = 30/60 = 0.5 \text{ MJ/h/m}^3$. Because G is greater than 0.4 MJ/h/m³ as shown in [Table 6.4.6.2](#) for *open flued appliances*, additional ventilation openings are required.
- Calculate the free area of additional ventilation openings:
 - From [Table 6.4.6.2](#) for an *open flued appliance* in a room vented directly to outside, the ventilation opening is to have a *free area* (A) of 450 mm² per MJ/h of *appliance gas* input.
 - Free area* of ventilation opening, $A = 30 \times 450 = 13\,500 \text{ mm}^2$
- Determine the number of ventilation openings and their location:
 - From [Table 6.4.6.2](#) for an *open flued* appliance in a room vented directly to outside, one ventilation opening in the wall facing direct to outside is required.

Table 6.4.6.2 in part Open Flued Appliances determining the number of vents, ventilation size and locations.

Appliance	Open Flued appliances	
	Direct to outside	Via an adjacent room
In a room	 <p>Where input $G > 0.4 \text{ MJ/h/m}^3$, $A = T \times 450 \text{ (mm}^2\text{)}$</p>	 <p>Where input $G > 0.4 \text{ MJ/h/m}^3$, $B_1 = B_2 = T \times 650 \text{ (mm}^2\text{)}$</p>

General requirements for ventilation of new gas appliance installations in buildings constructed prior to September 2013

While the article above has discussed ventilation requirements for buildings constructed post 2013, what about buildings constructed prior to September 2013?

Clause 6.4.5 from the current 2022 Standard applies to new appliance installations in buildings that were approved for construction prior to the adoption of the 2013 version of this Standard.

Where an appliance(s), other than a room-sealed appliance, is to be installed in a room or enclosure other than a plant room or residential garage, that room or enclosure must be ventilated. Where the total input of the appliance(s) exceeds 3 MJ/h for each cubic metre of the room or enclosure volume, the ruling requires these spaces must be ventilated.

Where an appliance(s), other than a room-sealed appliance, is to be installed in a plant room or residential garage the plant room or residential garage must be ventilated irrespective of the gas consumption of the appliances or the volume of the room.

To determine if ventilation is required in a room or enclosure you will need to tally the total gas consumption (MJ/h) of any open flued appliances in that space and then calculate the space volume.

Simply divide the total gas consumption by the space volume to give you the MJ/h//m³, if you have a figure greater than **3MJ/h//m³** you are required to provide ventilation to that space.

Example: A 200 MJ/h open flued appliance is installed in a room 5m long, 4m wide and 2.4m high, ventilation will be directly from outside:

- a. calculate the room volume, $V = 5m \times 4m \times 2.4m = 48m^3$
- b. divide the total gas consumption T (200MJ/h) in the space by the room volume, V (48m³) to determine the MJ/h//m³:
 $T / V = MJ/h//m^3$
 $200MJ/h / 48m^3 = 4.16MJ/h//m^3$

In this example the **4.16MJ/h//m³** calculation exceeds the **3MJ/h//m³** requirement, two ventilation openings must be provided for that space.

To calculate the vent opening sizes go to Clause 6.4.5.3 and Table 6.4.5.3, this Clause provides the calculation to determine vent sizes, and the Table provides coefficient factor to be applied for the type of space and the source of ventilation.

Appliance location	Source of ventilation	Factor <i>F</i>
Appliance in a room or enclosure, other than a plant room	Directly from outside	300
	Via an adjacent room	600
Appliance in a plant room	Directly from outside	150
	Via an adjacent room	300
Appliance in a residential garage	Directly from outside	300
Ventilation shall not be sourced from a ceiling or floor space, due to the possibility of drawing in combustion products and odours.		
NOTE "Directly from outside" means the ventilation path maintains at least the recorded ventilation area required and is unobstructed by building material or insulation. This can be achieved via ducting to an internal space from outside.		

Table 6.4.5.3 – Ventilation

Clause 6.4.5.3 Natural ventilation

Two permanent openings must be provided each with a minimum free ventilation area as calculated using the following equation:

$$F \times T = A$$

F = factor given in Table 6.4.5.3

T = total gas consumption of all appliances, excluding room-sealed appliances, in MJ/h

A = minimum free ventilation area, in millimetres squared

With this example with the appliance in a room sourcing ventilation directly from outside Factor 300 will be used.

$$F \times T = A$$

$$300 \times 200MJ/h = 60,000mm^2$$

The minimum free ventilation area for each vent is to be **60,000mm²** (600cm² or 0.06m²)

The minimum dimension of any free ventilation opening must be 6 mm to minimize linting.

Ventilation requirements for flueless gas heaters in residential premises

We've talked about general ventilation requirements for open flued heaters and cooking appliances, what about flueless gas heaters in domestic homes, what are the requirements for them?

Firstly, you must ensure the flueless heater can be installed in the particular area, you must establish that the room is not a prohibited area, i.e bedroom, bathroom / toilet, or a combined living sleep area. Where a flueless heater is installed adjacent to a bedroom / sleeping area, the bedroom must be isolated from the adjacent room (closable doors).

Next, there is a maximum allowable flueless heater rating in SA of 18MJ/hr. This applies equally to both Natural Gas and LPG heaters. See (b) and note below.

Calculation of the maximum unflued heater capacity for a room:

(a) Non-Thermostat models

Measure the room volume in cubic metres and multiply by 0.2 = maximum megajoule rating allowed in the room.

Example: Room volume is $60\text{m}^3 \times 0.2 = 12\text{MJ}$ (maximum allowable hourly capacity).

(b) Thermostat controlled models

Measure the room volume in cubic metres and multiply by X 0.4 = maximum megajoule rating allowed in the room.

Example: Room volume $60\text{m}^3 \times 0.4 = 24\text{MJ}$, however the maximum capacity rule limits the appliance to 18MJ/hr.

Ventilation

Ventilation must be provided into the room to be heated, at both high and low level, at the rate of 1000mm^2 of free and permanent ventilation per hourly megajoule rating of the heater. Ventilation must be provided prior to the appliance being used.

To calculate the vent openings is by simply multiplying the allowable maximum hourly capacity by 1000mm^2

Example: An 18 megajoule heater requires 18000mm^2 of free ventilation area at both high and at low level. $18\text{MJ/hr} \times 1000 = 18000\text{mm}^2$ (180cm^2 or 0.018m^2)

Note: Some flueless LPG heaters, which were sold prior to a rule change, and which have a capacity of more than 18 megajoules per hour can still be sold and installed in SA. This is provided that the conditions above, regarding ventilation, room size and appliance capacity are still met. Contact this office for a current list of flueless LPG heaters in this category.

Conversion units: ($\text{mm}^2 \times 0.01 = \text{cm}^2$) or ($\text{mm}^2 \times 0.000001\text{mm}^2 = \text{m}^2$)

What happens when a customer asks me to install a bayonet point in a living room in preparation of them purchasing a flueless heater down the track, what do I need to do?

Where the capacity of the flueless heater is unknown both of the vent openings need to have minimum openings of 25000mm^2 (250cm^2) each. In this scenario, you can only install the bayonet point after you have provided the ventilation openings.

If the owner advises they will provide the ventilation openings after you install the bayonet point, can you install the bayonet point? Simple answer is **no**, the ventilation must be provided prior to the bayonet point is installed not afterwards. In this situation you must leave the tailpipe capped off until the owner fits the ventilation openings.

Modifications and Relocation of Type B Gas Appliances

In previous editions of Regulation Roundup, we provided guidance on how to identify a Type B Gas Appliance, as well as the commissioning and certification requirements for these appliances*. In this edition, we will focus on your responsibilities when modifying or relocating an existing Type B Gas Appliance.

*For further information, refer to editions 54 and 55 of Regulation Round-up and Gas Bulletin #52, all available on the Gas trades webpage.

Framework for Compliance

The Gas Act 1997 section 56(1)(b) indicates that a person conducting gas fitting work on a gas installation (including appliances) must ensure that examinations and tests are carried out as required under the regulations. In addition, Gas Regulations 2012 regulation 43(1) indicates that a person who installs, commissions or **modifies** a Type B appliance or **relocates** a Type B appliance to a different location (whether on the same premises or otherwise) must ensure that examinations and tests are carried out in accordance with AS3814 and AN/NZS5601.

Finally, AS3814 – Industrial and Commercial gas-fired appliances provides the following direction: “Where an appliance is **modified** or **relocated**, it should be upgraded to meet the requirements of this Standard current at the time of the modification or relocation, and may need to be resubmitted to the technical regulator.” (Clause 1.2.6)

Regulatory Significance

What does “modification” of a Type B appliance include?

AS3814 Clause 1.4.83 Modification

An alteration that changes the safety integrity of the existing system or takes the gas appliance out of its original certification criteria. This may include –

- a) gas valve train equipment;
- b) combustion/purge air system;
- c) flame safeguard system; and
- d) burner management system.

NOTE: Like for like exchange of components does not change the original certification

Component Replacement (like-for-like replacement)

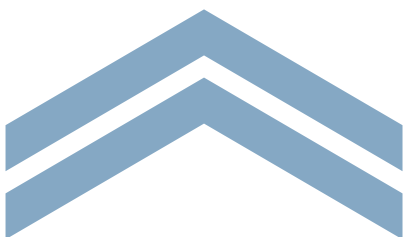
The replacement of a valve train component or an electrical or electronic safety device, due to failure in service, with an identical component (like-for-like-replacement) **is not regarded a modification** (provided any settings remain unchanged) and an appropriately licenced worker or contractor performs the replacement.

Component Replacement (different type)

The replacement of a valve train component or an electrical or electronic safety device, due to failure in service, with a non-identical component is considered a modification requiring compliance with the requirements in AS3814 Clause 1.2.6.

Appliance Upgrades

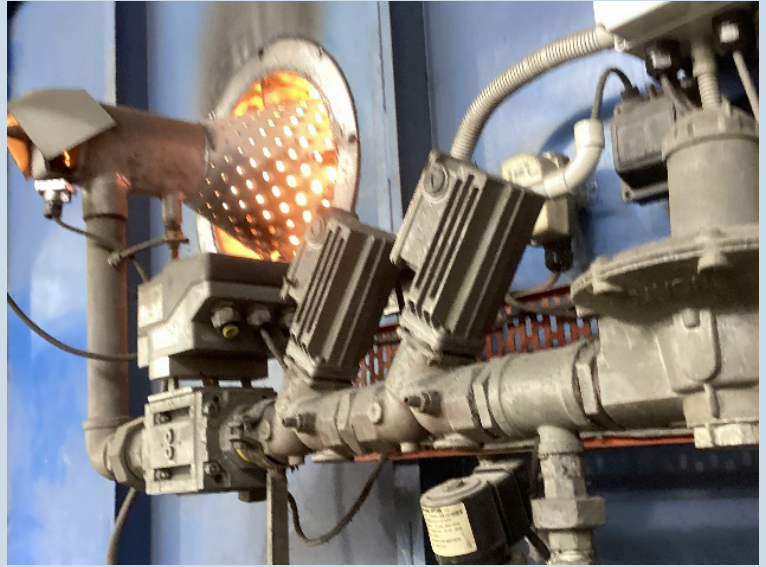
Upgrades to a Type B gas appliance that alter its original certification design – such as changes to gas input, fuel type, burner control systems, flame safeguard system, combustion, ventilation and exhaust system – are considered modifications requiring compliance with AS3814 Clause 1.2.6.



What about Relocating a Type B appliance?

A Type B appliance that is being relocated to a different location (whether on the same premises or otherwise) would require compliance with the requirements of AS3814 and AS/NZS5601 current at the time. The appliance would need to be retested by an authorised Type B certifier for "Type B Compliance" in its new location and against the current Standards.

When upgrades, modifications, or relocations are planned for a Type B appliance, it is recommended to consult with an authorised Type B certifier or the Technical Regulator beforehand to assess how the proposed changes may affect the appliance's certification status.



Are you aware of your responsibilities when relocating or modifying a Type B Gas Appliance?

Restriction on appliance connection

Clause 6.6.1 Restriction on appliance connection from the AS/NZS5601.1-2022- composite piping must terminate at least 1 metre from the nearest part of a gas appliance (including flue systems) or a greater distance if needed to prevent heat damage radiating from an appliance.

While our inspectors are finding many gas fitters following these new requirements there are still too many gas fitters breaking these rules.

When our inspectors find non-compliant composite piping installations, the contractor is directed to return to site to rectify the fault, the Technical Regulator expects non-compliant gas installations to be remediated and evidence this work has been completed.

The series of photos below show completed remedial work by the contractor, in these instances gyprock in new homes had to be removed so metallic piping could be installed replacing the non-compliant composite piping.





Limiting conditions for composite piping

Table 4.2 – Consumer piping materials states composite piping can no longer be installed above ground external to a building. All consumer piping external to the building must be metallic and must extend at least 1 metre inside the building before transitioning into composite piping. From a gas meter box and LPG cylinder installation, the metallic pipework must extend at least 1 metre inside the cavity. Brazing, welding, or annealing cannot be conducted on piping within 1 metre from composite pipe and any other joint with non-metallic components.



The above image shows non-compliant installations, all six properties were installed with composite piping however excess flow valves were not installed, this resulted in all six properties being disconnected and tagged off. The gas contractor had to return and fit EFVs to all properties before the tags were removed by the inspector.



1st fix stage, compliant external metallic pipework from future gas meter wall box location extends 1m into building before transitioning to composite piping.

Requirements for excess flow valves for composite piping installations in Class 1a buildings

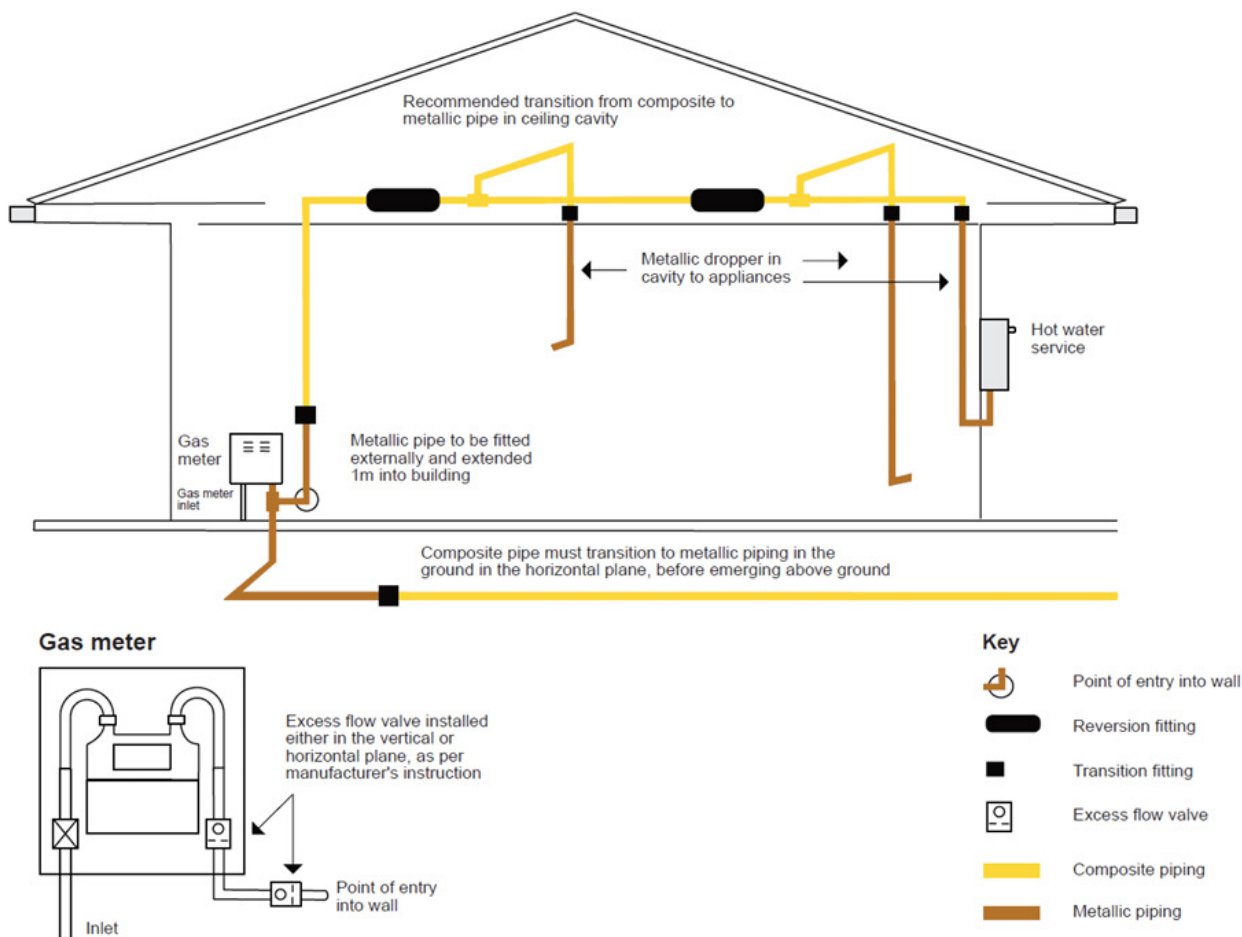
Clause 5.2.11 Provision of fire emergency isolation for composite piping, for residential homes a device must be fitted that will shut off the supply of gas when the composite piping has adversely affected by fire. For residential homes approved devices can be either an excess flow valve (EFV) or an under pressure shut-off valve (UPSO).

These devices need to be:

- Installed in a readily accessible location
- Installed prior to the multilayer piping
- Located as close as practicable to the gas supply point

Remember, composite pipe doesn't have the durability and mechanical strength of metallic piping when subjected to fire.

Below is a diagrammatical representation of compliant composite piping installation, for more information on composite piping, excess flow valves, reversion fittings and other technical information please visit our Gas Trades website: [Gas Technical Bulletins](#)



Note: Marker tape must be laid above composite pipe when installed in an open trench, the tape must be between 150mm and 300mm between the finished ground surface.

Diagrammatical representation of composite piping installation compliant with Table 4.2 and Clause 6.6.1.

Do it right the first time

To do it right the first time will save you time, money, and embarrassment. Make sure you are aware of, and up to date with, industry best practices and standards. Lacking knowledge and understanding of the applications of gas standards can lead to the following negative consequences:

1. Cost to the business

- Labour, materials, and time to rectify the issue are reducing or eliminating profit margins.

2. Project Delays

- Revisiting and remediating work can delay project completion, especially if demolition or significant rework is required.
- Can affect other trades schedules.

3. Client Dissatisfaction

- Clients feel frustrated, inconvenienced, or lose confidence in the contractor's abilities.

- Can damage relationships and reduce likelihood of referrals or repeat business.

4. Reputational Risk

- If the issue becomes public (e.g., online reviews or regulatory records), it can harm the contractor's reputation even after rectification.

5. Regulatory Consequences

- Ongoing work breaches of standards may result in expiation or referrals to Consumer and Business Services.

To avoid these, we ask you to be gas smart! Contact our office if you have any enquiries or if you need advice or clarification on any aspect of a gas installation or appliance at otr@sa.gov.au

ELECTRONIC CERTIFICATES OF COMPLIANCE (eCoCs)

In January 2017, the OTR launched the Electronic Certificate of **Compliance** (eCoC) system and, as of 1st of July 2018, paper certificates of compliance were discontinued. In the month of July 2018 over 22,000 eCoCs were issued and in the first two and a half years this totalled over 400,000 across Plumbing, Gas and Electrical.

Gas eCoCs alone are at approximately 210,000 with well over 5,000 gas licensees registered on the Portal.

The *Gas Act 1997* requires that all gas fitters shall complete and submit a gas eCoC for any gas installation or alteration work carried out. The eCoC shall be issued to the owner or operator of a gas installation within 30 days of completing the work. The licensed gas fitter must complete all tests & checks necessary and certify that the installation / alteration / conversion has been carried out in alignment to the gas standards in place (currently AS/NZS 5601.1:2022 and the AS/NZS5601.2:2020)

An eCoC is effectively a part of the installation, you must submit an eCoC within 30 days for work completed, withholding an eCoC after the 30 day period has expired as a leverage for payment will find **you** in breach of the Gas Act.

When filling out an eCoC please remember that it is a **legal document** and as such, all fields should be filled out to the best of your ability ensuring that all information declared is true and correct. Any gas appliance/s installed must be itemised on the eCoC in **SECTION A – JOB DETAILS**. You are certifying that you have carried out the installation in accordance with AS/NZS 5601 and in that, manufacturers may rely on this document when addressing a warranty claim.

The eCoC must be issued by the gas fitter **and** the licensed contractor. In many cases, this is the same person, however, **if** the work has been performed by a restricted gas fitter who is licenced to '*work under technical direction of a gas fitting worker*,' then the **actual** gas fitting worker who provides this technical direction, must be appropriately licenced and qualified, must sign off and submit the eCoC as proof, demonstrating the following:

- all work has been completed in accordance with the standard in place
- a pressure test for soundness has been performed and is sound (Gas tight)
- all appliances and materials are certified for use within Australia are compliant with AS/NZS 5601, and
- appliances have been commissioned as per the manufacturer's instructions

Customer (Owner/Client) Details

If you do not have an Owner/Client name or phone number (e.g. new builds), The name of the worker or contractor **must not be used**. Enter the person or entity that has contracted your services and / or who will pay your invoice on completion.

If your customer does not have a mobile number, you can enter 08, followed by a landline number. The eCoC must be provided to the owner or operator of the gas installation within 30 days of completing the work and the easiest way to achieve this is by entering your customers valid email address.

The eCoC system allows you to create a certificate and hold it in 'draft'- this will log the start date of the eCoC and is great if you are carrying out both first and second fix parts of the installation as you can submit one eCoC for the whole job.

If there is a requirement to tender for the second fix installation, then you must complete the eCoC for the first fix and submit the certificate. This covers the installation of consumer piping if you do not return to complete the second fix. If, for any reason, you do not return to do the second fix and were scheduled to, the draft certificate will need to be completed for the first fix only.

Currently we have approximately 9,000 eCoCs in 'draft'. If an eCoC is not finalised and issued to your client within 30 days of completion you are in breach of Section 56 (2) from the *Gas Act 1997* and may face penalties.

The OTR are targeting new installations where gas eCoCs have not been submitted.

Section 56 (2) from the *Gas Act 1997* requires registered gas fitting workers who carry out work on a gas installation to ensure that the requirements of the regulations are met by submitting a gas eCoC to the owner or operator. Failure to comply may result in an expiation being issued to you. Spending 2 minutes on your mobile phone, laptop, or tablet submitting an eCoC could save you an expiation fee of \$315 + levy of \$105 = totalling \$420. I know what I would do, I prefer my money in my pocket! Please ensure you submit a gas eCoC after you have completed every gas installation job.

Using The eCoC To Your Benefit

Do you upload photos to your eCoC when you complete a job? Few do!

ONLY THE OTR WILL SEE THE PHOTOS.

The OTR strongly recommend you start adding photos to the eCoC.

Using a Hot Water Service install for example, if the immediate area around your install is altered for whatever reason e.g., area is enclosed **after** you have submitted your eCoC and becomes non-compliant, you would have a record of how the installation was when you had left because you uploaded a photo, therefore you would not be held liable. Also adding any advice given to owners under notes backing up your install would be recommended.

The eCoC support team will be happy to assist if you want guidance in doing this.

Resources

Electronic Certificates of Compliance – Registering and using.

www.energymining.sa.gov.au/industry/regulatory-services/office-of-the-technical-regulator/documents/ecoc/Using-eCoC-Gas.pdf

Using multiple licences to complete eCoCs

www.energymining.sa.gov.au/industry/regulatory-services/office-of-the-technical-regulator/documents/ecoc/Using-multiple-licences-to-complete-eCoCs.pdf

eCoCs Frequently Asked Questions

www.energymining.sa.gov.au/industry/regulatory-services/office-of-the-technical-regulator/electronic-certificates-of-compliance-ecoc/ecoc-system-faqs



Expiation Notice Report			
Location	Non Conformance	Breach / Clause	Expiation Issued
Adelaide	Gas leak on pipework at hot water heater, gas certificate of compliance not submitted	Appendix E.5 AS/NZS5601.1 and Section 56 (2) of the Gas Act	2
Magill	Open end gas pipe behind cabinetry, causing gas leak	Clause 3.4.3 AS/NZS5601.1	1
Camden Park	Failure to test for gastightness by installing contractor	Clause 3.5.2 AS/NZS5601.1	1
Mount Gambier	Freestanding commercial cooker hose assembly not correctly installed	Clause 6.10.2.7 AS/NZS5601.1	1
Kingston SE	Emergency isolation valve not installed to the commercial kitchen	Clause 5.2.9.2 AS/NZS5601.1	1
Berri	Gas leak left in commercial kitchen	Clause 3.5.1 AS/NZS5601.1	1
Hendon	Failure to comply with the requirements of the AS/NZS1596 Storage and handling of LP Gas (low pressure hose assembly used for high pressure pigtail cylinder connection)	Clause 4.6 AS/NZS5601.1	1

INFRASTRUCTURE

Solar Farm Maintenance



FIRE DANGER SEASON IS APPROACHING

**SOLAR FARM SAFETY REMINDER
FOR OPERATORS & ELECTRICIANS**

INSPECT PLUGS AND CONNECTORS

Look for signs of corrosion, damage, or wear.



MANAGE VEGETATION

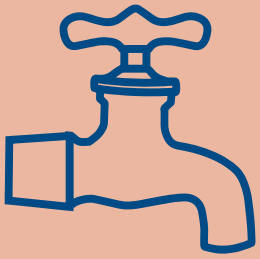
Clear growth beneath and around solar panels to reduce fire risk.



FOLLOW MANUFACTURER GUIDELINES

Stay safe. Stay prepared.

INFRASTRUCTURE



NO WAY IN SA: Fixture Connector Adaptors

Funnel type fixture connector adaptors like the Nero Cyclone are used in sanitary plumbing and drainage systems. Designed to simplify the alignment of drain outlets with underground plumbing.

It is noted these products are WM certified to [WMTS - 536:2022 Fixture connector adaptor](#)

It is likely the cyclone drain and potentially others do not comply through deemed to satisfy provisions when installed as part of a floor waste riser, particularly where the grate is offset from the riser.

This information was provided based upon the following provision and definitions.

AS/NZS 3500.Part 2:2021 states in clause 4.6.7.6 that:

- "Floor waste gullies shall be installed with an accessible removable grate and have a **riser** of not less than DN 80 to finished surface level..."

AS/NZS 3500.Part 0:2021 defines the **riser** to mean:

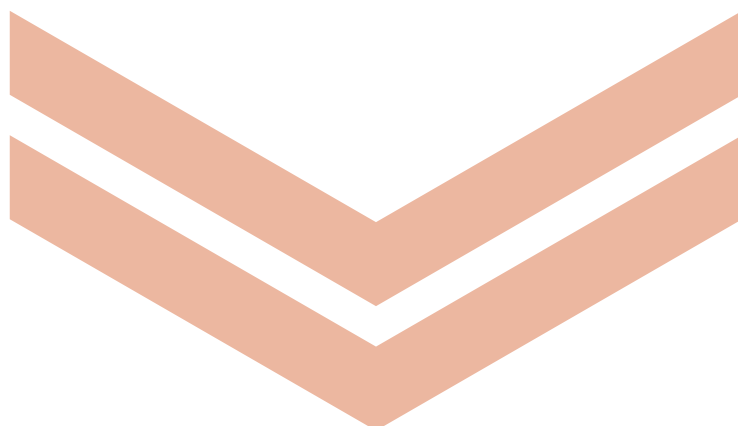
- "Vertical extension of the inlet leg of a trap to floor or ground level. A **straight** length of pipe fitted to a trap to extend it. It may allow connections of pipes."

The definition for riser is accompanied by a note which states:

- "A riser usually extends to floor level and is fitted with a grate, so as to serve as a floor waste outlet."

In offsetting the floor grate the riser is no longer a straight riser.

Fats and oils that come from the body during personal hygiene cleaning processes build up within floor wastes contributing to foul odours expelling. Maintaining the ability to service and cleanout a floor waste is crucial to mitigating foul odours.



NO WAY IN SA: Art Plastic 100mm EXTENDA PAN



- **The National Construction Code (NCC) Volume Three – Plumbing Code of Australia (PCA)** outlines performance requirements for all components of a property’s sanitary plumbing system. This includes connections from sanitary fixtures and appliances to the sanitary drainage system.
- **South Australian Variation SA C1D3 – General Requirements** in the PCA modifies clause 2.3(a) of AS/NZS 3500.2. It states: *“Bends in pipes must have a throat radius in accordance with Table 5.6 and Figure B6 of AS/NZS 1260 (2017), and must be free from wrinkling and flattening.”*
- **AS/NZS 1260:2017 – PVC-U Pipes and Fittings for Drain, Waste and Vent Applications** specifies standards for PVC-U pipes and fittings used in above-ground and below-ground sewer, drain, waste, and vent systems. These systems operate under gravity flow and low pressure. The standard covers both plain and structured wall pipes and fittings. The same applies for ABS or HDPE products when used in sewer applications.
- Pipes and fittings used in sanitary plumbing and drainage systems for offsetting a riser that is installed in an incorrect location should therefore be repaired with pipes and materials that meet the requirements of AS **AS/NZS 1260:2017 – PVC-U Pipes and Fittings for Drain, Waste and Vent Applications**
- The example fitting above has not been certified for compliance with AS/NZS 1260. Instead, it has been certified to AS 1172.1:2014 which is a standard titled **“Sanitary plumbing products – Water closet pans”**. It sets out the technical and performance requirements for toilet pans used in conjunction with flushing cisterns or other flushing devices that comply with AS 1172.2. It has been certified as a component of a water closet contributing towards a total assembly but is being used to offset the sanitary plumbing and or drainage system.
- Installation compliance issues are present by taking this certification approach as the fitting itself if forming part of the total assembly. This could lead to potential warranty issues arising with the WC pan that it is paired with as this product becomes part of the WC “total assembly”. Will WC manufacturers warrant their products if they are paired with this product forming a total assembly?
- **Systems that comply with AS/NZS 3500.2 – Sanitary Plumbing and Drainage** are considered to meet the performance requirements of the PCA.

- **AS/NZS 3500.2:2021 Section 2.3 pipes and fittings – General limitations** prescribe the following general limitations relevant to this product.

Section 2 Materials and products

2.1 Scope of section

This section specifies requirements for materials and products to be used in sanitary plumbing and drainage systems.

2.2 General

Materials and products used in a sanitary plumbing and drainage systems shall be selected to ensure they are fit for their intended purpose.

NOTE 1 In New Zealand, the requirements for materials and products are contained in NZBC Clauses B2 Durability and G13 Foul Water.

NOTE 2 See [Appendix A](#) for information on selecting products that are fit for purpose.

NOTE 3 See [Section 16](#) for information on vacuum drainage systems.

2.3 Pipes and fittings – General limitations

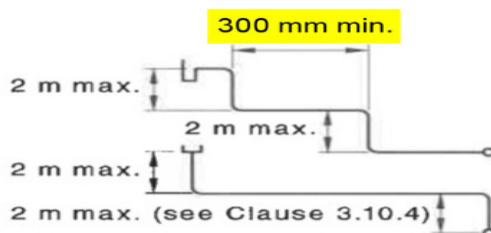
The following limitations shall apply to the use of pipes and fittings for plumbing and sanitary drainage installations:

- Bends in pipes shall be free from wrinkling and flattening.
- Pipes and fittings shall be protected from excessive ambient heat.
- When encased in concrete, all pipes and fittings shall be wrapped with an impermeable flexible sheath not less than 6mm thick.

- **AS/NZS 3500.2:2021 Section 3.10.4** prescribe the following requirements for minimum distances between a vertical offset.

3.10.4 Vertical sections

Where the fixture discharge pipe is the same size as the unvented branch drain to which it connects, the drain to the trap shall have a maximum of two vertical jump-ups, each not exceeding 2 m in height, and separated by not less than 300 mm of graded pipe.





Summary: Compliance of Art Plastic 100mm EXTENDA PAN

The Art Plastic 100mm EXTENDA PAN is being used in sanitary plumbing and drainage systems, but its compliance with relevant standards is questionable:

- **Regulatory Framework:**

- The National Construction Code (NCC) Volume Three – Plumbing Code of Australia (PCA) sets performance requirements for sanitary plumbing systems.
- In South Australia, Variation SA C1D3 modifies clause 2.3(a) of AS/NZS 3500.2, requiring pipe bends to meet specifications in AS/NZS 1260:2017, including proper throat radius and freedom from wrinkling or flattening

- **Standards:**

- AS/NZS 1260:2017 governs PVC-U pipes and fittings for drain, waste, and vent systems under gravity flow
- Products used to correct misaligned risers that are part of the sanitary plumbing and drainage system must comply with this standard.

- **Certification Issue:**

- The EXTENDA PAN is certified to AS 1172.1:2014, which applies to toilet pans, not sanitary plumbing fittings.
- Using it to offset plumbing systems may lead to non-compliance and warranty risks, especially if it becomes part of a water closet (WC) “total assembly.”

- **Compliance Risks:**

- Systems must comply with AS/NZS 3500.2:2021 to meet PCA performance requirements.
- Specific sections (2.3 and 3.10.4) outline limitations and minimum distances for vertical offsets and lagging requirements, which may not be met by this product.

- **Regulatory Oversight:**

- In South Australia, the Office of the Technical Regulator oversees compliance with plumbing standards.

Back to Basics with Concrete Evidence

AS/NZS 3500.2:2021 is the current deemed to satisfy provision for sanitary plumbing and drainage systems within South Australia. The following information regarding the application of concrete and cement mortar in specified circumstances is located within it.

Clause 5.3 – Concrete Support for Drains

Concrete pads must be used in the following cases:

1. Under gully traps and boundary traps made of materials other than cast iron.
2. Under inspection opening junctions where a riser is brought to the surface.
3. Under bends greater than DN 65 forming risers from the main drain such as a stack.
4. Square junctions:
 - Concrete must be placed beneath the junction to a minimum thickness of 100 mm.
 - It must continue vertically to the centre of the junction fitting.
5. 45° junctions:
 - Concrete must be placed beneath the junction to a minimum thickness of 100 mm.
 - It must continue vertically to the underside of the bend fitted to the junction.

Clause 4.10 – Jump Ups

- Underneath and surrounding the bend or junction in accordance with section 5.3 at the base of a vertical jump up section of a drain

Clause 5.4.2 – Cement Mortar Bedding (for Rock or Shale Base)

Where the trench base is rock, or shale and the grade exceeds 20% (1 in 5):

- Cement mortar bedding must be at least 50 mm deep below the barrel of the pipe.
- Pipes must be supported at intervals not exceeding 1500 mm before placing the mortar.

Clause 5.4.4 – Bedding and Backfill

- Drains must be surrounded by not less than 75 mm of compacted sand or fine-grained soil.

- No hard-edged objects should contact the pipe or fittings.
- Backfill must be free from:
 - Builder's waste
 - Bricks
 - Concrete pieces
 - Rocks > 25 mm
 - Soil lumps > 75 mm

What is Concrete?

Clause Reference: 2.9.1 – Concrete mix

- Composition:
 - Pre-mixed concrete must have a minimum compressive strength of 20 MPa.
 - Site-mixed concrete consists of:
 - Cement
 - Fine aggregate
 - Coarse aggregate
 - Water (sufficient to make the mix workable)
- Applications:
 - Used for structural support, such as:
 - Under gully traps and boundary traps (Clause 5.3)
 - Under inspection opening junctions and risers
 - Under jump ups
 - Under bends forming risers such as stacks
 - For anchor blocks (Clause 3.4.4)
- Standards Referenced:
 - AS 1379 (Specification and supply of concrete)
 - AS 3600 (Australia)
 - NZS 3109 and NZS 3124 (New Zealand)

The below photo is an example of a compliant concrete support pad for an inspection opening with a riser to the surface.



The below photo is an example of a non-compliant concrete support pad installation for a raised to surface inspection opening. The concrete is not mixed properly and is not installed in accordance with clause 5.3



What is Cement Mortar?

Clause Reference: 2.9.2 – *Cement mortar*

- Composition:
 - 1 part cement to 2 parts fine aggregate (by volume)
 - Mixed with minimum water to make it workable
 - Must not be used if left standing for more than 1 hour
- Applications:
 - Used for bedding pipes in rock or shale trenches (Clause 5.4.2)
 - Especially where the grade exceeds 20% (1 in 5)
 - Minimum bedding depth: 50 mm below pipe barrel
 - Pipes must be supported at ≤ 1500 mm intervals before placing mortar
- Standards Referenced:
 - AS 1478.1 (Chemical admixtures for concrete, mortar, and grout)



List of Common Australian Standards



Australian Standard	Current Publication	Current Status
ELECTRICAL STANDARDS		
AS/NZS 3000: 2018 + Amend 1 & Amend 2:2021, Amend3:2023 <i>Wiring Rules</i>	19/05/2023	
AS/NZS 3001.1:2022 <i>(Caravan) Electrical Installations – Site supplies for Connectable electrical Installations</i>	18/11/2022	
AS/NZS 3001.2:2022 <i>(Caravan) Electrical Installations – Connectable electrical Installations</i>	18/11/2022	
AS/NZS 3002:2021 <i>Shows, Carnivals and Events</i>	25/06/2021	
AS/NZS 3003:2018 + Amend 1:2019 <i>Patient Areas</i>	29/06/2019	
AS/NZS 3004.1:2014 <i>Marinas and Boats</i>	27/06/2014	
AS/NZS 3004.2:2014 + Amend 1:2015 <i>Boat Installations</i>	17/07/2015	
AS/NZS 3008.1.1:2017 <i>Selection of Cables</i>	02/02/2017	
AS/NZS 3010:2017 + Amend 1:2020 <i>Electrical Installations - Generation Sets</i>	24/04/2020	
AS/NZS 3012:2019 + Amend 1:2020 <i>Electrical Installations - Construction and Demolition Sites</i>	20/03/2020	
AS/NZS 3017:2022 <i>Electrical installations – Verification by inspection and testing</i>	02/12/2022	
AS/NZS 3019:2022 <i>Electrical installations – Periodic assessment</i>	09/09/2022	
AS/NZS 4836:2023 <i>Safe working on or near Low-Voltage electrical Installations</i>	03/03/2023	
AS/NZS 4777.1:2024 <i>Grid connection of energy systems via Inverters</i>	23/08/2024	
AS/NZS 4777.2:2020 + Amend 2:2024 <i>Grid connection of energy systems via Inverters – Inverter requirements</i>	23/08/2024	
AS/NZS 5033:2021 <i>Installation Safety requirements for Photovoltaic (PV) arrays</i>	19/11/2021	
AS/NZS 5139:2019 <i>Electrical Installations – Safety of Battery systems for the use with power conversion equipment</i>	11/10/2019	
AS/NZS IEC 60479.1 <i>Effects of Current on the Human beings & Livestock: General</i>	25/03/2022	
SAPN Service & Installation Rules Manual #32 (Amended)	12/05/2025	
Electricity (General) Regulations	14/03/2024	
Electricity Act 1996	01/10/2020	

List of Common Australian Standards continued...



List of Common Australian Standards cont...



Australian Standard	Current Publication Date	Current Status
GAS STANDARDS		
AS/NZS 5601 Part 1 <i>General Installations</i>	07/10/2022	
AS/NZS 5601 Part 2 Amend 1 <i>LP Gas Installations in Caravans & Boats non-propulsive purposes</i>	26/02/2021	
AS 4575 <i>Gas Appliances – Servicing Type A Appliances</i>	09/08/2019	
AS 3814 <i>Industrial & Commercial gas-fired appliances</i>	25/10/2018	
AS 1375 <i>Industrial Fuel Fired Appliances</i>	13/10/2023	
AS/NZS 4645.1 <i>Gas distribution networks – Network Management</i>	28/02/2018	
AS/NZS 4645.2 <i>Gas distribution networks – Steel Pipe systems</i>	28/02/2018	
AS/NZS 4645.3 <i>Gas distribution networks – Plastic Pipe systems</i>	28/02/2018	
AS/NZS 1596 Amend 2 <i>The Storage & Handling of LP Gas</i>	01/10/2020	
PLUMBING STANDARDS		
*Plumbing Code of Australia	01/10/2022	
Plumbing Standard Issued by the Technical Regulator	2023	
AS/NZS 3500 Plumbing and drainage Part 0: Glossary of terms	14/05/2021	
AS/NZS 3500 Plumbing and drainage Part 1: Water services	28/05/2021 and 29/06/2018 as applicable	
AS/NZS 3500 Plumbing and drainage Part 2: Sanitary plumbing and drainage	28/05/2021	
AS/NZS 3500 Plumbing and drainage Part 4: Heated water services	28/05/2021	
AS/NZS 2845.2 Water supply - Backflow prevention devices Part 2: Registered air gaps and break tanks	27/06/2025	
AS/NZS 2845.3 Water supply- Backflow prevention devices Part 3: Field testing and maintenance of testable devices	14/02/2020	
AS 2419.1 Fire hydrant installations Part 1: System design, installation, and commissioning	03/09/2021	
AS 2441 Installation of fire hose reels	2005	
FPA101D Automatic Fire Sprinkler System Design and Installation - Drinking Water Supply	2021	
Guidelines for Non-Drinking Water in South Australia Part 0: Glossary of Terms, Abbreviations and References Part 1: Infrastructure Part 2: On site Plumbing	July 2024	
AS/NZS 1260 <i>PVC-U pipes and fittings for drain, waste and vent applications Amend 1</i>	2017	
AS 1428.1 <i>Design for access and mobility-General requirements for access - New building work</i>	2001 and 2009 as applicable	

At Standards Australia you can view the draft with latest comments and provide your feedback here:
<https://comment.standards.org.au/>.



[Contact List]

Office of the Technical Regulator

Level 8, 11 Waymouth Street,
Adelaide SA 5000
(Reception on Level 4)
www.otr.sa.gov.au

Electrical Technical Advice

Phone: (08) 8226 5518 (8am – 4:30pm)
Fax: (08) 8226 5529
Email: otrmail@sa.gov.au

Infrastructure

Powerlines and building/vegetation clearance zones

Phone: (08) 8226 5667 (9am – 5pm)
Email: otr.electricityinfrastructure@sa.gov.au

Gas Technical Advice

Phone: (08) 8226 5722 (8am – 4:30pm)
Fax: (08) 8226 5866
Email: otr@sa.gov.au

Plumbing Technical Advice

Phone: 1300 760 311 (8am – 4:30pm)
Email: otr.plumbenquiries@sa.gov.au

eCoC Team

Phone: (08) 8429 3394 (8:30am – 4:30pm)
Email: otr.ecoc@sa.gov.au

EXTERNAL CONTACTS

General Information

Licence or Registration Applications and Address Changes

Consumer and Business Services
Phone: 131 882 (9am – 4:30pm)
Email: occupational@sa.gov.au
www.cbs.sa.gov.au

Master Plumbers Association

213 Greenhill Road, Eastwood SA 5063
(PO Box 145, Fullarton SA 5063)
Phone: (08) 8292 4000 (8:30am – 5pm)
www.mpasa.com.au

NECA

213 Greenhill Road, Eastwood SA 5063
PO Box 47 Fullarton SA 5063
Phone: (08) 8272 2966 (8:30am – 5pm)
neca@necasa.asn.au

Master Electricians Australia
44 Northcote Street, Torrensville SA 5031
Phone: 1300 889 198 (8am - 5pm)
www.masterelectricians.com.au

Appointments and Information

SA Power Networks

Builders & Contractors:
1300 650 014 (8am – 5pm)
General Enquiries: 13 12 61 (9am – 5pm)
Faults & Emergencies: 13 13 66 (24/7)
Fax: 1300 650 016
Email:
customerservice@sapowernetworks.com.au
www.sapowernetworks.com.au

Australian Standards

Standards Australia
Phone: 1800 035 822 (9am – 5pm)
www.standards.org.au

Training

Gastrain

Unit 1, 61-65 Tapleys Hill Road,
Hendon SA 5014
(PO Box 83, Royal Park SA 5014)
Phone: 1300 955 583 (9am – 5pm)
Phone: (08) 8447 7783
Fax: (08) 8447 7753
www.gastrain.com.au

TAFE SA

Electrical and Gas
For all training enquiries
Phone: 1800 882 661 (9am – 5pm)
www.tafesa.edu.au/courses

PEER

Industry training and apprenticeships
1042 Port Road, Albert Park SA 5014
Phone: (08) 8348 1200 (7:30am – 5pm)
www.peer.com.au

Locations of Gas, Electricity or Telecommunications

Before You Dig Australia (BYDA)

Formerly Dial Before You Dig (DBYD)
Phone: 1100
www.byda.com.au

After-hours locations or Gas Emergency (including LPG)

Origin Energy LPG

24-hour hotline: 1800 808 526

Kleenheat

LPG emergencies (cylinders & tanks):
1800 093 336

ELGAS

Emergency response: 1800 819 783

APA

Emergency Gas Leak: 1800 GAS LEAK
(1800 427 532)
LPG Leak: 1800 808 526
Gas Transmission Pipelines (SA): 1800 808 526

Gas or Electrical major incident reporting 24/7

Office of the Technical Regulator

24/7 SA Emergencies: 1800 558 811

Gas Trade contact

APA

Local Gas Distribution Network:
1800 GAS LEAK (1800 427 532)
Connections & Enquiries: 1300 001 001

[Additional websites for further information]

South Australian Parliament for Acts and Regulations

www.legislation.sa.gov.au

SafeWork SA

www.safework.sa.gov.au

Gas Energy Australia (formerly ALPGA)

gasenergyaustralia.asn.au

Australian Competition and Consumer Commission (ACCC)

www.accc.gov.au

Australian Gas Networks Ltd

www.australiangasnetworks.com.au

Elgas

www.elgas.com.au