



Regulation Roundup

A bulletin for electrical, gas and plumbing industry workers brought to you by the Office of the Technical Regulator
Issue 41 | February 2018

Message from the Technical Regulator:

Welcome to Regulation Roundup Issue 41. This edition contains a number of very practical articles to try to assist you with your everyday work.

In the Electrical section there is quite a detailed account of the upcoming changes to the Wiring Rules.

The Gas section examines some issues associated with the use of composite pipe, such as using it safely in steel-framed housing, and the requirement for reversion fittings.

The Plumbing/Water Industry section highlights the importance of ensuring cross-connections are avoided when there is a non-drinking water supply present.

The OTR is again gearing up for the Roadshow Seminar Series. We encourage you to attend one of the roadshows as they are a very good opportunity for us to communicate the latest topical information to the industry. I also invite you to come to the roadshows with any questions you may have; the value of the roadshows can be greatly enhanced with the active involvement of the industry.

As always, I recommend that you take a few minutes to read Regulation Roundup and please contact us if you have any questions associated with the information we have provided.

Robert Faunt, Technical Regulator

Electronic Certificates of Compliance Update

The cut-off date for paper Certificates of Compliance (CoC's) is fast approaching and now is a great time to visit sa.gov.au/otr.ecoc to register for the electronic Certificate of Compliance (eCoC) system.

Paper CoC's will no longer be accepted as of 1 July 2018. Thousands of Plumbers, Gas Fitters and Electricians have successfully registered for and are using the new eCoC system. The eCoC system features some fantastic tools for the industry, including:

Customer Copy of eCoC

It's easier than ever to send your customer a copy of the Certificate of Compliance. When creating an eCoC, you're able to enter the customer's email address. When the certificate is submitted, the system will automatically send a PDF copy of the certificate to the customer via email. You can also nominate other parties who require a copy of the eCoC to receive it upon submission of the eCoC.

Adding Workers, Supervisors and Admin Staff

The eCoC system allows you to add, remove, update and keep track of your workers and authorised persons easily. Contractors can also add supervisors (read/write permissions) and admin (read only permissions) onto your eCoC account. They will then be provided with their own unique login details to access the system.

Record Keeping

All of your eCoC's are conveniently stored within the eCoC system and are easy to access. You can filter your eCoC's to see only Certified eCoC's with the click of a button. You can also search eCoC's by CoC Number, Property Address, Status (Draft, Certified, or Submitted), Contractor Name, Created Date and Submission Date. The eCoC system also lets you sort your results by clicking on the column headings.

FOR TECHNICAL ENQUIRIES:

Electrical

P: (08) 8226 5518 | (8:30am - 4:30pm)

F: (08) 8226 5529

Gas

P: (08) 8226 5722 | (8:00am - 5:00pm)

F: (08) 8226 5866

Plumbing

P: 1300 760 311 | (8:30am - 4:30pm)

www.sa.gov.au/otr

IMPORTANT INFORMATION - Have You Changed Your Address?

Contact Consumer and Business Services (CBS) for any change of address or licence details:

Level 3,
91-97 Grenfell Street, Adelaide 5000

Phone: 131 882

Email: occupational@sa.gov.au

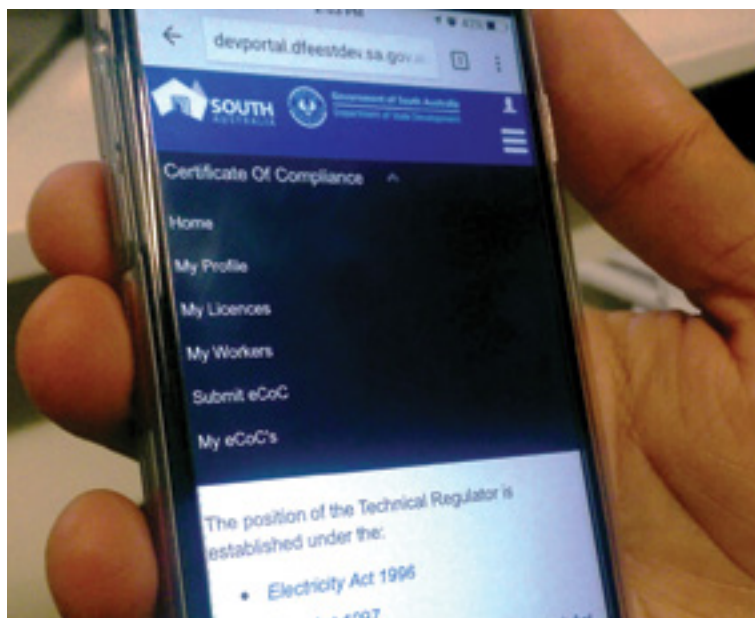
Only contact the Office of the Technical Regulator for change of address notification if you **do not** hold a trade licence but wish to continue to receive Regulation Roundup.

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Easy to Access

Regardless of whether you're on site, at home, or in the office you can access the eCoC system. The system has been designed to be accessible from any device with a data connection including a mobile phone, tablet, laptop or PC.

Reduced Paper

As the eCoC system retains your eCoC's, you no longer need to retain paper copies. This has the potential to reduce the amount of printing, paper and filing required within your business.

Attachments

You are able to attach an unlimited number of documents to an eCoC. These documents will not be included in the PDF copy of the certificate which customers and nominated parties will receive, but they will be stored within the certificate in the eCoC system as attachments, should you ever need to retrieve them.

The eCoC system is being routinely updated to provide the best possible service to the industry. The Office of the Technical Regulator is dedicated to providing the necessary support to licence holders during this transition period. We would recommend registering, accessing, and becoming familiar with the system before the cut-off date so we can help you with any issues you may have.

For eCoC enquiries:

P: 8226 5500

E: OTR.eCoC@sa.gov.au

W: www.sa.gov.au/otr/ecoc

Registration of Gas and Electrical CoC books

You can register your CoC books online by going to www.sa.gov.au/otr and clicking on the link in the Top 5 box on the left side of the page.

Please note: the paper CoC's are currently being phased out and will no longer be accepted as of 1 July 2018. From this date forward, CoC's will need to be completed, signed and submitted via the eCoC system.

For more information on this system or to register, please go to <https://www.sa.gov.au/topics/energy-and-environment/electrical-gas-and-plumbing-safety-and-technical-regulation/compliance-and-enforcement/ecoc>

Electrical Bulletin



Calling all Electricians! NECA 2018 Roadshows

NECA SA/NT will be running their 2018 Roadshow Seminar Series across South Australia in March, April and May and we encourage all electrical contractors and workers to attend and find out the latest developments within the industry. The seminars will cover, in detail, the new AS/NZS 3000 Wiring Rules, Metering Contestability, the new AS/NZS 3010 Generating Sets and much more.

This annual seminar series is a significant training resource for our industry. The event this year is designed to provide licensed electricians with a greater understanding of the following topics:

- *NECA SA/NT on the new Group Training scheme NECA Careers & Apprenticeships*
- *SA Power Networks on Metering Contestability and the Service and Installation Rules*
- *Office of the Technical Regulator on the new AS/NZS 3000 Wiring Rules, the new AS/NZS 3010 Generating Sets, Battery Storage Standards and Electronic Certificates of Compliance.*

Thanks to the Office of the Technical Regulator and SA Power Networks for their support and involvement in this initiative.

NECA have once again nominated Mates in Construction to be our charity of choice for the 2018 Roadshow Seminar Series. There will be donation tins available at each seminar, and more information will be provided on MIC, the fantastic work they are doing for the construction industry and why they need our help.

Suppliers, manufacturers and wholesalers will be on location with their new products and service displays and NECA SA/NT staff will also be on hand to answer your questions in regards to what NECA can do for you and your business.

To attend the NECA 2018 Roadshow Seminar Series, please complete the registration form enclosed in this edition of the Regulation Roundup at least 7 days prior to your chosen event and send to NECA SA/NT via fax on (08) 8373 1528 or email neca@necasa.asn.au

For further information please phone NECA SA/NT on (08) 8272 2966 or visit www.neca.asn.au/sa

Underground Wiring

A reminder that the laying of underground cables or their enclosures is deemed to be electrical work and both the contractor and worker must be licenced accordingly.

Any person found performing this work, or engaging another person or business to perform this work without the appropriate licence is subject to penalties of up to \$250,000 for a body corporate, or \$20,000 and 12 months imprisonment for the worker in some cases.

Last year with the assistance of OTR officers, Consumer and Business Services took action against multiple contractors and workers performing unlicensed work, including an

earthmoving contractor who was regularly installing underground consumer mains.

To install an underground electrical service of above 50 volts AC or 120 volts DC, the contractor must hold an Electrical Contractor's Licence (or Building Work Contractor's Licence with electrical endorsement) and any person on site performing the work or assisting with performing the work must be a registered electrical worker.

For any further information on licencing or to report unlicensed work, please contact Consumer and Business Services at www.cbs.sa.gov.au or call 131 882.

New Edition of AS/NZS 3000

The new edition of AS/NZS 3000 is expected to be printed in March/April 2018. The date of publication has been set back several times, mainly due to additional comments, editorial processes and styling.

In this edition of Regulation Roundup, we have listed an overview of the major changes to the Standard.

In the new edition of AS/NZS 3000, all changes will be marked with an asterisk in the left margin.

Section by section the major changes include:

Section 1

- New and revised definitions.
- 'Direct contact' and 'indirect contact' are now designated 'basic protection' and 'fault protection'.
- Requirements for alterations and repairs have been clarified and expanded, and the term "additions" has been deleted. (An addition is simply new electrical work, that must comply with the new standard).

Section 2

- Operating characteristics of switchgear, control gear and switchboards have been added.
- Origin requirements of sub-mains and final subcircuits have been added.
- Requirements for main switch operations have been added.
- Positions of overload protective devices have been clarified.
- Requirements for alternate positions of short circuit protective devices have been updated.
- Discrimination/selectivity of protective devices have been expanded.

- Protection requirements for switchboard internal arcing faults have been enhanced.
- Requirements for RCD protected circuits in domestic, residential, non-residential and medical installations have been updated, and RCD requirements for alterations and repairs have been clarified.
- Illustration of basic clearances for switchboard access has been updated.
- New clause on arc fault detection devices and their installation requirements has been added.
- Requirements for switchboard installations at 800 A or greater have been enhanced, including access and egress, switchroom door sizes and minimum clearances around switchboards in switchrooms.
- Further clarification has been provided regarding rising mains tee-offs.

Section 3

- Improved installation safety requirements for cables that pass through bulk thermal insulation.
- Colour identification of active, neutral and earth conductors further clarified.
- Requirements for wiring systems installed in positions where they are likely to be disturbed, have been clarified.
- Requirements have been clarified for cables of different electrical installations in common enclosures and for segregation of cables.
- Requirements for segregation of cables of different voltage levels have been clarified.

New Edition of AS/NZS 3000 (continued)

Section 4

- Revised figures identify where IP rated equipment is to be installed.
- The requirements for installation wiring connected via an installation coupler have been revised.
- Electric vehicle socket-outlet requirements now included.
- Requirements for lighting equipment and accessories have been revised.
- Requirements for the safe installation of recessed luminaires have been enhanced, and an updated list of luminaire classifications added.
- Requirements for cooking appliance switching devices clarified for improved safety outcomes.
- Gas appliances and equipment isolation requirements clarified.
- Further clarification of isolator requirements for air conditioning and heat pump systems.
- A new clause and figures have been added relating to electrical equipment installed in locations requiring protection from the weather.
- Installation and location requirements for socket-outlets for electric vehicle charging stations have been added.
- Clearance requirements for socket outlets and switches from open gas or electric cooking appliances have been added.
- Requirements for isolating switches to be installed adjacent to all fixed wired water heaters have been added.
- Requirements on hazardous areas presented by gas relief vent terminals have been added.
- Requirements for airconditioners and heat pumps where the internal unit (or units) are supplied from a switchboard or circuit separate to that of the compressor, and new exceptions have been added.
- Requirements for lifts installed for general use and that are not emergency lifts (safety services) have been added.

Section 5

- MEN system further defined for clarity.
- MEN connection requirements have been added regarding location in an accessible position.
- Acceptable earth electrodes types have been updated.
- Earthing requirements for SELV and PELV systems have been updated.
- Equipotential bonding requirements have been expanded and clarified through enhanced requirements for showers, bathrooms, pools and spas.

- Earthing of conductive building materials in combined outbuildings.
- Earthing requirements for individual outbuildings and combined outbuildings.
- Earthing requirements for conductive switchboard enclosures associated with unprotected consumer mains.
- Earthing of conductive reinforcing in combined outbuildings that contain showers or baths.
- Conductive pool structures and the bonding connection point required to be installed and bonded to the installation earthing system regardless of other specified requirements.
- Figure showing bonding arrangements for pools and spas has been added.
- Requirements on conductive fixtures and fittings installed within arm's reach of the pool edge, and that are in contact with the general mass of earth, either directly or indirectly, have been added.

Section 6

- Additional content applying to water containers into which persons do not normally put a part or all their body.
- Installation requirements for deluge showers have been clarified.
- Showers Zone 1 has been clarified for different shower head configurations.
- Fixed water container size reduced from 45 L to 40 L.
- A figure for showers with a hinged door has been included.
- Specified capacity for spa pools or tubs has been increased from 500 litres to 680 litres.
- Electricity generation systems, including inverters have been excluded from being installed in classified zones.
- Clause excluding pools and spas from being located in areas containing electrical equipment owned by the electricity distributor, that result in such equipment being incorporated into any classified zone.
- A table has been added to define classified zones for fountains and water features.

Section 7

- Clause 7.2, Safety services, has been restructured.
- Installation requirements for electricity generation systems have been reviewed and clarified in line with applicable Standards.
- Electric vehicle charging system requirements have been added.
- Clause 7.8 has been revised.

Section 8

- A number of clauses split into subclauses to differentiate between general, application, visual inspection, test requirements and accepted values.
- Extra low voltage installation testing requirements have been relocated to section 8 from section 7.
- Clarification of RCD testing and EFLI testing.
- The date of initial energization is now required to be recorded at the installation switchboard.

Appendices

- Appendix A—Now a single list of referenced Standards.
- Appendix B—Table from FAQ34 (voltage drop and EFLI values comparison) added for further guidance.
- Appendix C—Expanded and the information provided on maximum demand has been clarified and updated.
- Appendix D—Revised to provide more comprehensive guidance information for the construction of private aerial lines.
- Appendix K—Switchboard equipment summary has been added to provide a checklist of requirements for switchboards.
- Appendix L—Appendix deleted. Formerly on first aid in Australia.
- Appendix M—Formerly on first aid in New Zealand. This content was deleted and a new Appendix on reducing the impact of power supply outages has been added to provide guidance on continuity of supply and back up plans.
- Appendix N—New Appendix to provide guidance on the types and variations of conduit available for electrical installations.
- Appendix O— New Appendix to provide guidance on the installation of these devices.
- Appendix P— New Appendix to provide guidance for circuits intended to supply energy to electric vehicles.
- Appendix Q— New Appendix to provide guidance for the selection of circuit protection and switching devices when being operated on a d.c. supply that would be deemed to meet the design, equipment selection and installation criteria of this Standard.

Refrigeration Mechanic Fined for Non-Licensed Work

On 12 September 2017, a refrigeration mechanic pleaded guilty in the Adelaide Magistrates Court, to performing electrical and plumbing work without holding

a worker's registration. He received a total of \$2,270 in fines, court costs and prosecution costs. The work involved was the installation of a heat pump water

heater. In this instance, no significant electrical safety or compliance issues were found by the OTR auditor that attended.

OTR Electrical Expiations Issued

Worker/ Contractor	Non-Compliance	Breach	Expiation
Contractor	Certificate of compliance not issued as required - house extension	Section 61 (1) (c) Electricity Act 1996	\$375
Contractor	Live cables exposed - installation wiring associated with new house	Section 61 (1) (a) Electricity Act 1996	\$375
	Examinations and tests not fully carried out as required	Section 61 (1) (b) Electricity Act 1996	\$375
Contractor	The multiple earthed neutral (MEN) connection was not in place	Section 61 (1) (a) Electricity Act 1996	\$375
	Examinations and tests not fully carried out as required	Section 61 (1) (b) Electricity Act 1996	\$375
Contractor	No RCD installed - new power circuit in office	Section 61 (1) (a) Electricity Act 1996	\$375
Contractor	Earth connection left unterminated - installation of roller shutters	Section 61 (1) (a) Electricity Act 1996	\$375
Contractor	Multiple breaches - installation wiring associated with new house	Section 61 (1) (a) Electricity Act 1996	\$375
	Examinations and tests not fully carried out as required	Section 61 (1) (b) Electricity Act 1996	\$375
Contractor	Live parts exposed - Panel removed from the main switchboard unattended	Section 61 (1) (a) Electricity Act 1996	\$375
Contractor	Multiple non-compliant PV solar installations	Section 61 (1) (a) Electricity Act 1996	\$750
Contractor	Underground wiring systems - non compliant installation of consumer mains	Section 61 (1) (a) Electricity Act 1996	\$375
	Examinations and tests not fully carried out as required	Section 61 (1) (b) Electricity Act 1996	\$375
Contractor	Live cable exposed - installation of new switchboard	Section 61 (1) (a) Electricity Act 1996	\$375
	Examinations and tests not fully carried out as required	Section 61 (1) (b) Electricity Act 1996	\$375
Contractor	Examinations and tests not fully carried out as required - multiple breaches	Section 61 (1) (b) Electricity Act 1996	\$375
Contractor	Unauthorised meter relocation	Section 59 (1) Electricity Act 1996	\$375
Contractor	Unauthorised relocation of open wire service	Section 59 (1) Electricity Act 1996	\$375
Contractor	Unauthorised connection of open wire service and meter relocation	Section 59 (1) Electricity Act 1996	\$375
Contractor	Unauthorised meter relocation	Section 59 (1) Electricity Act 1996	\$375
Unlicensed worker	Unsafe installation of back-up generator	Section 61 (4) Electricity Act 1996	\$375

Electric Shock Report Incidents

Shock Source	Cause	Contributing Factors	Injuries	Action to make safe
Metal food tongs being used on electric barbecue.	Large electrical load supplied via multiple flexible extension cord sets and daisy chained EPODS.	Due to length of all the flexible extension cords supplying various equipment the neutral return path was not an adequate size for the load.	Home owner received electric shock between hands and feet.	Network operator disconnected plug in load and advised home owner to have electrical contractor install permanent socket outlets.
Flexible extension cord set.	Water had entered flexible three-pin cord extension socket.	Construction worker was using cut off saw with water cooling and then used a portable grinder using the same water soaked cord extension set.	Worker received electric shock between their hands.	Equipment involved in incident was removed from service.

Electric Shock Report Incidents (continued)

Shock Source	Cause	Contributing Factors	Injuries	Action to make safe
High voltage overhead power lines.	Trees being trimmed were extremely close to powerline.	Council workers trimming trees were complying with safe approach limits for the voltage but the tree branches they had just cut and were holding were closer to the high voltage power line.	Both workers received an electric shock.	Work ceased immediately and procedures reviewed by council management.
Desktop P.C. power supply cord.	Power supply cord for P.C. deliberately damaged.	Primary schools OHSC worker went to investigate why the computer was not working. Worker discovered several staples had been placed into the power cord.	School worker received electric shock to hand and arm.	P.C removed from service and all similar equipment checked to ensure no further equipment had been damaged.
Office wall-mounted air conditioning thermostat.	Worker contacted live components.	Office worker removed cover from thermostat and attempted an adjustment when they contacted a live part.	Worker received electric shock to hand.	Worksite installed tamper proof covers and educated their workforce.
Construction site supply cable.	Cable severed during building works.	Steel bridge was being lowered into place between two parts of a multi-level building when it damaged a power cable in its path.	Worker received electric shock to right side of body.	Work stopped immediately onsite while cable isolated and work procedures reviewed.
Water tank float switch.	Water had ingressed into float switch.	Worker was asked to check level in water tank in multistorey building.	Worker received electric shock to hands.	Electrical contractor isolated circuit for float switch until it could be replaced.
Metal gates at rear of house.	Powerline had been damaged by tree.	Powerline had been brought down by a tree branch falling and was resting on the galvanised iron fence. Home owner went to open gates.	Home owner received electric shock between hands.	Network operator attended and repaired fallen powerline.
Bathroom taps.	Lighting circuit had shorted out to water pipes.	Rodent-damaged cable caused active conductor to short out to water pipes which in turn had no effective equipotential bonding connection.	Home owner received electric shock between hands and feet.	Network operator attended and isolated house supply until an electrical contractor had affected repairs to cable and earthing system.
Socket outlet.	Pipe cleaner was inserted into terminals of a socket outlet.	Student thought it would be a good idea to turn the socket outlet on whilst the other student kept hold of the pipe cleaner.	Student received burn to right hand.	School to review supervision of students when they have access to socket outlets.
Cord extension set from adjacent house.	Cord terminated into exposed terminals of revenue metering equipment.	Owner had decided to supply his house from the house next door and connected an extension cord into the metering equipment leaving exposed live terminals.	Owner received electric shock to hands.	Network operator attended site and disconnected dangerous cord extension set.
Industrial process power supply unit.	Leads connecting power supply were damaged exposing conductor.	Power supply had been installed with damaged test leads exposing the conductor. The shock value was higher because the lead contacted should have been connected to earth reducing the voltage.	Operator received electric shock to hands.	Power supply removed from service until electrical contractor replaced test leads and connected the power supply correctly.
Water heater supply cable.	Supply cable insulation damaged exposing conductors.	Mice had eaten away cable insulation. School services officer was placing steel wool where the cable entered the building to restrict their access.	School services officer received electric shock to hand.	Electrical contractor isolated and then repaired cable.
Variable speed drive.	Failure to discharge capacitors.	Electrical worker reconnecting a variable speed drive contacted terminals in the unit. The V.S.D. was isolated from the main supply but the unit's capacitors still held charge.	Electrical worker received electric shock.	Electrical workers performing maintenance to follow correct isolation procedures.

Gas Bulletin

Common Trenches

– What are the Requirements?

5.4.9 Separation from underground electrical cable

The separation between any underground *consumer piping* and any electrical supply cable shall be at least

- (a) 100 mm in any direction, where the electrical supply cable is indicated along its length with marker tape and is provided with mechanical protection; or
- (b) 300 mm in any direction, where the electrical supply cable is neither indicated nor protected in accordance with (a).

NOTES:

- 1 Mechanical protection is provided by any of the following: concrete slabs, continuous concrete pour, bricks designed for protecting electrical supply cables.
- 2 Guidance for high voltage supplies is given in [AS 2067](#).

5.4.10 Separation from underground electrical earthing electrode

The separation between any underground *consumer piping* and an electrical earthing electrode, for an electrical supply not exceeding 1000 V, shall be at least 500 mm.

NOTE: Guidance for high voltage supplies is given in [AS 2067](#).

5.4.11 Separation from underground communication cable

The separation between any underground *consumer piping* and a communication cable shall be at least 100 mm.

5.4.12 Separation from underground services

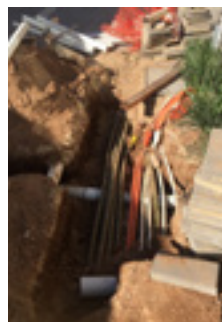
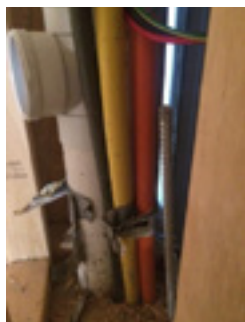
The separation between any underground *consumer piping* and any service, including other *consumer piping*, other than an electrical or communication service shall be at least—

- (a) 100 mm, for *consumer piping* not exceeding 65 mm nominal size; or
- (b) 300 mm, for *consumer piping* exceeding 65 mm nominal size.

5.4.13 Crossing other underground services

Any underground *consumer piping* crossing any other service shall—

- (a) cross at an angle of not less than 45°; and
- (b) have a vertical separation of not less than 100 mm.



Examples of non-compliant installations (what a mess!)



Underground services without correct separation.

Hazardous Installations and/or Appliances

If you come across an installation or an appliance that is deemed hazardous and should not be left in service for safety reasons, eg exposing persons to risk of injury or property damage, you should take the following action:

- If possible isolate and repair the cause of the risk.
- If the owners do not authorise the repair,
 - Explain that you cannot leave it functioning and explain your obligations under the Gas Act and the hazards of this unsafe installation.
 - If possible turn off, tag “do not use”, take a photo and write

details on your CoC as a record of what you have done to make safe and that you have explained the risks to the owner.

- Provide a copy of the CoC to OTR.

Examples of hazardous installations:

- Gas leak in service
- Flueless appliance with no ventilation
- Space heater heat exchanger fractured
- Appliance producing high levels of carbon monoxide
- Flame safeguard device not working
- Electrical ignition sources within LPG hazard zone
- Uncertified appliance connected to gas supply

Commissioning Gas Regulators

Gas inspectors undertaking audits are finding many LPG gas regulators are not being commissioned. Generally, the pressures are lower than the prescribed 2.75 kPa, resulting in gas appliances operating at lower pressures than specified by the manufacturers, thus the appliances are not performing to their maximum efficiency.

It is the installer's and service person's responsibilities to ensure there is adequate supply to the gas appliances.

The main reasons for supply being diminished are:

- an undersized gas service,
- gas regulator undersized or not commissioned,
- or a combination of these.

Safe Access to Appliances

During the phases of selection, design and installation of gas equipment, consideration must be given to the safety of operators and service personnel requiring access for commissioning, operating and maintaining this equipment.

With the utilisation of floor space meaning reduced room sizes, it's getting harder for service persons to gain access to appliance components for maintenance and replacement, thus placing them at risk of injury. Not only is accessibility a factor, but also the facilities available to enable removal of large components, such as beams and pulleys.

One such example (shown in photo 2) is a package burner installed in a vertical position. As these burners need periodical removal for servicing of the nozzles and other components, this installation places persons at risk of falling and manual handling injuries. Fortunately, the location of this boiler is under an 'I beam', to which modifications are being made to install a pulley system.

Other examples for safe access are the use of permanently fixed ladders and platforms. Refer to the two clauses below.

AS/NZS 5601.1:2013 Clause 1.6 Occupational Health and Safety

Only safe working practices shall be employed when working on gas installations. The process of installing gas appliances shall take into consideration relevant occupational health and safety (OHS) requirements.

These requirements cover all aspects of access, installation, operation and maintenance. Persons installing gas appliances shall be aware of their responsibilities and be adequately trained and qualified in accordance with local OHS requirements. Precautions shall be taken to avoid any electrical hazards present in the gas installation.

AS/NZS 5601.1:2013 Clause 6.3.3 Accessibility

Gas appliances shall be installed only in accessible locations and with sufficient clearances to allow access to, and removal of, all serviceable components.

NOTE: Removal of a panel or door to give access to a control compartment is acceptable.



Photo 1



Photo 2

Equipment at height should have a permanent safe means of access (shown in 3 photos above)

Licensing

OTR audits and enquiries often leads to findings of unlicensed persons, or persons performing works with inappropriate licenses. Ensure you check your license details whether worker, contractor or both with Consumer and Business Services. You can check your details on their website <https://secure.cbs.sa.gov.au/OccLicPubReg/LicenceSearch.php> or call them on 131 882.

As a worker you cannot sign off the contractor details on a CoC if you are not holding the appropriate contractor's license and, similarly, a contractor cannot sign off the worker's details without an appropriate worker's license.

If you are working under technical direction, you cannot certify, therefore you cannot sign as the gas fitter.

Refer to article in Regulation Roundup 37.

Previous issues of RR can be found on the OTR website:

<https://www.sa.gov.au/topics/energy-and-environment/electrical-gas-and-plumbing-safety-and-technical-regulation/about-the-otr/regulation-roundup>

Worker's License =
Contractor's License =

GAS CERTIFICATE OF COMPLIANCE

under the Gas Act 1997

Certificate Number: **09999999**

Owner/Client name	Joe Owner		
Installation Address	1 Example Rd, ADELAIDE, SA 5000		
Premises Type	House/Domestic		
Date of Work	Started: 03/01/2018	Finished: 04/01/2018	Submitted: 04/01/2018
Council	Adelaide City Council		

SECTION A - JOB DETAILS

Work Category	Work Type	Work Performed	
New Install	Consumer Pipedwork	Composite Labels fitted and Reversion fitting installed - No Copper	Gas Supply: NG Metering Pressure: 2.4

SECTION B - WARNING: Owners and operators of gas installations must take reasonable steps to ensure that the gas installation is compliant, safe and safely operated to meet the requirements of the Gas Act 1997.

Faults identified and brought to Customer's Attention (Mention if any)	
Have you placed defect tag/s on the faults identified?	N/A
Risk Assessment	None Observed

GAS FITTER: I certify that I have carried out the following tests/checks on the gas installation work detailed in this certificate and the results satisfy the requirements of the Gas Act 1997 and Regulations, or I have placed a defect tag on those faults noted in the 'Faults Identified' field above.

Test for soundness	Yes
Commissioned to manufacturer's requirements	Yes
Name	Example Worker
License Number	PG0001111
Date Certified	04/03/2018

CONTRACTOR/AUTHORISED PERSON: I certify that gas fitting work is in compliance with the Gas Act 1997 and Regulations. Also, where applicable, I am satisfied that the auxiliary electrical work and/or water plumbing work detailed above meets the requirements of the Electricity Act 1996 and Regulations and/or Water Industry Act 2012 including Regulations and Standards.

Contractor Name	Example Contractor	
Business Name	Example Contracting	
License Number	PG1157	
Phone/Mobile	0883265432	Email: contractor@emas.com
Address	11 WYNMOUTH STREET, ADELAIDE, SA 5000	
Date Certified	04/03/2018	

The Technical Regulator does not endorse the contents of this eCoC. The Technical Regulator does not accept responsibility for the truth or accuracy of the contents of this eCoC and will not be held liable for any loss or damage suffered in consequence of reliance upon the contents of this eCoC.

Page: 1 of 2

Office of the Technical Regulator, GPO Box 520 ADELAIDE SA 5001 | EMAIL: otr@sa.gov.au | OFFICE: (08) 8238 5722 | FAX: (08) 8238 1886
 Information for owners and operators please visit: www.sa.gov.au/gas

Combustibles Near Cookers

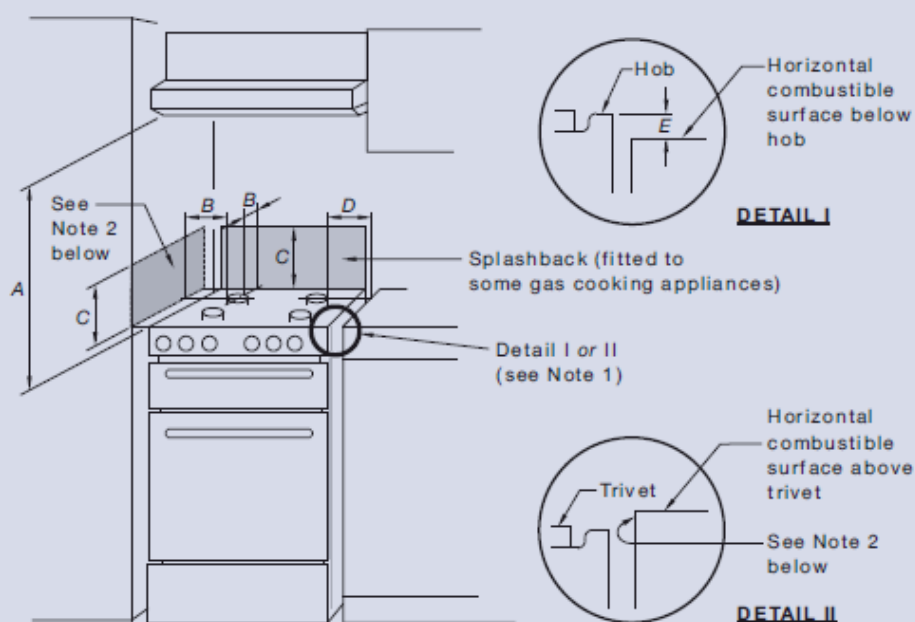
The OTR is receiving an increasing number of calls from gas fitters regarding concerns about 'stone' bench tops and splashbacks following an issue that was raised on a popular home renovating TV show last year.

Some of the materials used to manufacture these products are, in fact, combustible.

Our recommendation when installing cooking appliances in areas that have these products is to find out if the product is reconstituted stone and obtain the Installation and Product Manual or the SDS relating to the product from the manufacturer.

You should be able to find out if the product is flammable from the information provided.

If the product is flammable, refer to Clause 6.10 of AS/NZS 5601.1:2013.



External Gas Appliances Installed in Balconies or Under Covered Areas

This article has been modified and repeated principally for the benefit of architects, builders, consultants and hydraulic engineers tasked with locating external gas hot water systems in balconies on multi storey apartments.

Gas contractors generally review plans before quoting or performing gas installation work. Where it is obvious that a water heater is incorrectly located, the gas contractor should immediately raise this with the builder to resolve the issue with their architect or consultant and the OTR if necessary.

Gas contractors should not blindly follow plans and install gas to external gas water heaters in balconies or other enclosed areas if it constitutes breaching the Standard. The OTR has become aware of several significant developments containing such non-compliant installations.

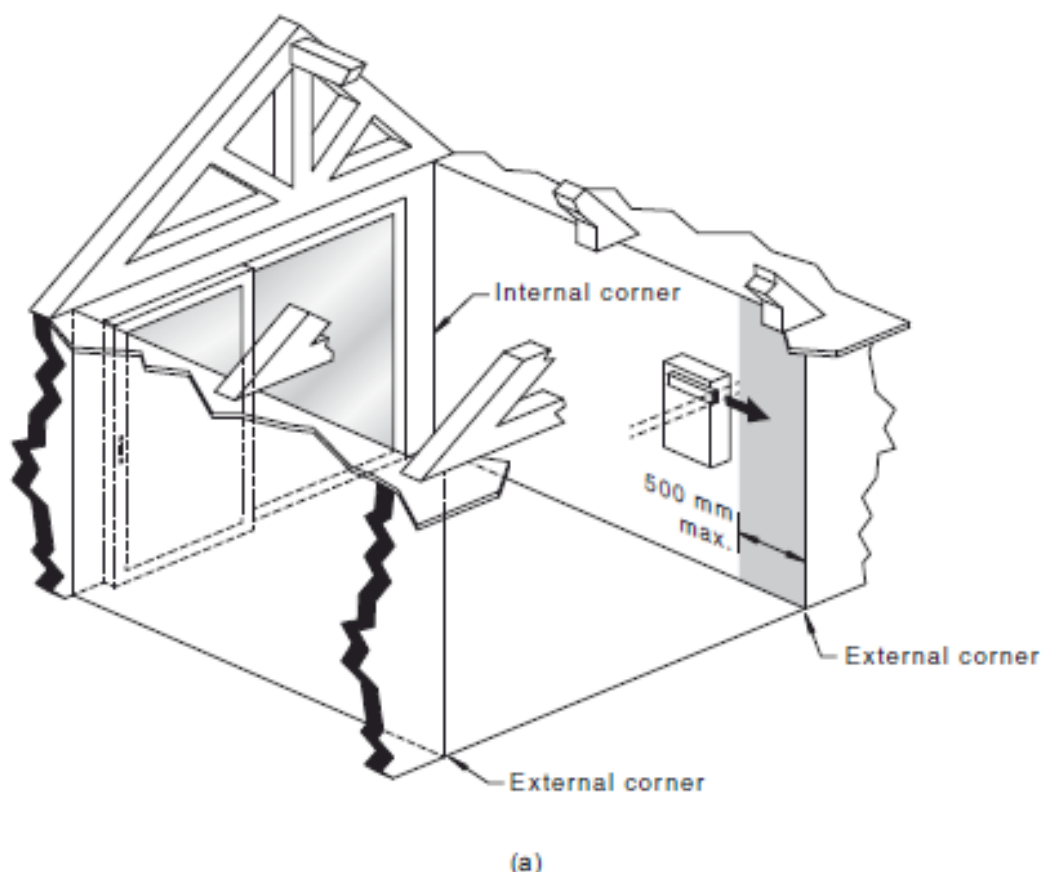
External model gas hot water heaters are designed and certified to be installed outdoors in well ventilated areas. This is to ensure that the products of combustion are

safely dispersed and there is ample air for combustion and cooling the appliances. If gas appliances are located under a covered area then at least two sides (50%) of that area must be permanently open to atmosphere. This means that pull-down blinds, shade-cloth etc cannot be installed on these openings as it will make the area an enclosure. If a client wants to keep the pull-down blinds, then the appliance will need to be relocated to a compliant outdoor location or an internal model gas appliance installed and flued to atmosphere.

When a fan-assisted water heater is installed in a balcony enclosed on three sides, the flue terminal must be within 500 mm of the opening and positioned so that products of combustion are vented directly towards the opening.

Some manufacturers supply an approved right-angle flue diverter accessory which can be attached on the flue terminal to direct the products of combustion 90-degrees towards an opening.

The photo below shows a non-compliant water heater located in a balcony. The heater is incorrectly located so the flue terminal is not positioned correctly, ie facing in the wrong direction towards a sliding door and more than 500 mm from the opening. As installed, the heater flue is within 300 mm of the return wall.



NOTE: There shall be no other flue terminals, gas meters, electricity meters, fuse boxes or openings into the building along the wall within the 500 mm distance as shown by the shaded area.

FIGURE 6.2 (in part) LOCATION OF FLUE TERMINALS OF BALANCED FLUE, ROOM-SEALED, FAN-ASSISTED OR OUTDOOR APPLIANCES

The diagram above shows the correct installation of a fan assisted water heater within 500 mm of the opening with an approved flue diverter fitted. (Reference to Figure 6.2 and clauses 6.9.3 and 6.9.4 from the AS/NZS5601.1 2013 amendment 2).

1st Fix Audits and Inspections

The OTR actively inspects 1st fix consumer pipe installations on new homes.

Key areas we look at are:

- Reversion fittings (see article on 'Composite Pipe Installations' on page 12)
- protection of multi-layer and copper pipe in steel frame structures
- damaged/kinked pipe
- final connection to appliances (particularly HWH) with multi-layer pipe
- running thread (parallel) being used without correct jointing method
- depth of cover of external below ground services (see 'Common Trenches' article in this edition)
- soundness testing

During these routine inspections, our inspectors have come across an array of non-compliant consumer pipework installations that gas fitters have had to return to fix up and put right.

Section 5 of AS/NZS 5601.1:2013 has all the information you need so you only have to make one trip!

These five photos show no protection where pipework passes through the steel frame. As a result, damage to the outer layer has occurred.



Photo 1



Photo 2



Photo 3



Photo 4

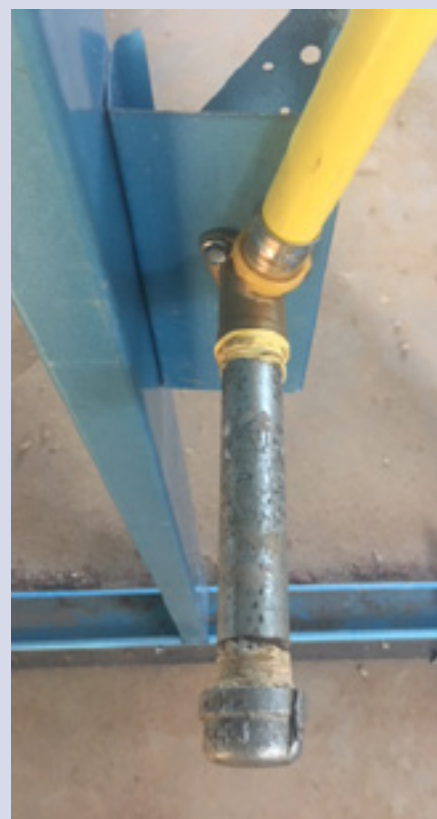


Photo 5

Composite Pipe Installations

The OTR randomly inspects new builds to audit the 1st fix stage of the gas outlet.

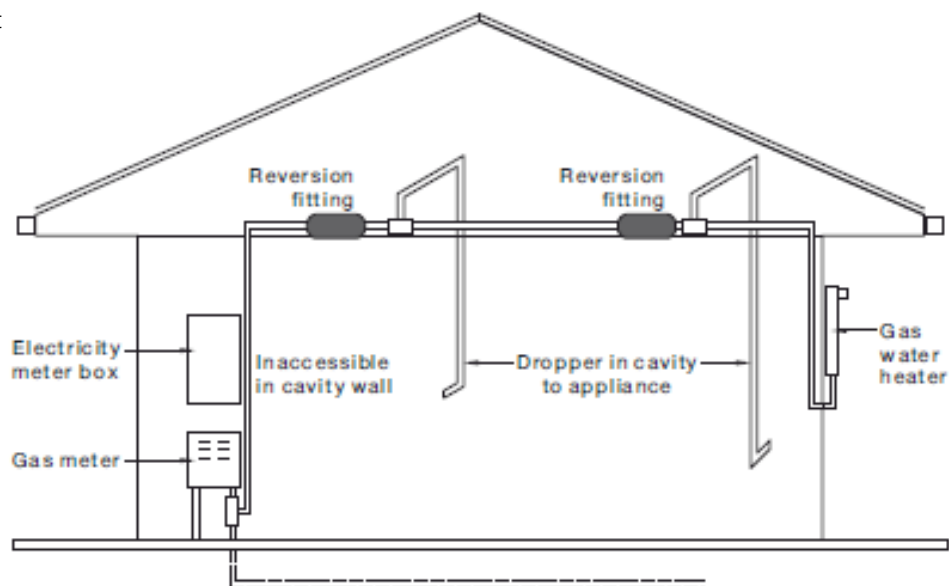
By doing this we can ascertain whether the outlet will be compliant before the ceiling and walls are cladded. We find composite pipe being used extensively. Composite pipe is a great product however we constantly find composite pipe installed with only expansion tees fitted and not the required reversion fittings.

Installing expansion tees into composite is always a good idea for the convenience of installing future appliances, but this does not satisfy the AS/NZS 5601 Gas Installation Standard for Reversion Fittings.

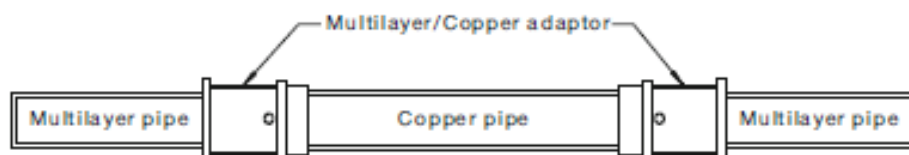
Reversion fittings are required to be installed if the outlet service is longer than 10 metres and there is more than one appliance installed; a reversion to standard BSPT thread or copper tube needs to be provided. Reversion fittings are to be installed in the main run of the outlet service in accessible locations prior to the first and last branch-off points.

See Figure 5.2 for reversion fittings installed in composite pipe and approved types of reversion fittings. The OTR also approves of galvanised cross point fittings to be used as reversion fittings.

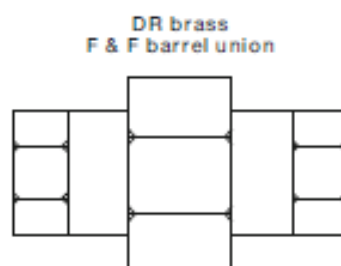
The purpose of a reversion fitting is to permit the future extension or connection to a non-compatible piping system to protect the customer from difficulties that may arise from non-availability of the proprietary system.



(a) Example of reversion fittings installed in a multilayer piping system (composite pipe)



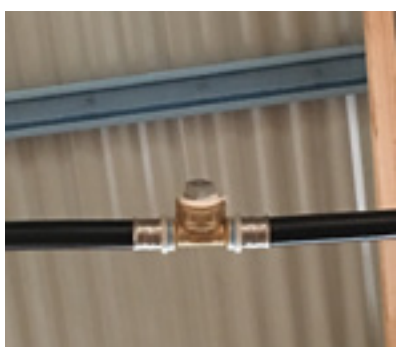
(b) Reversion to copper tube



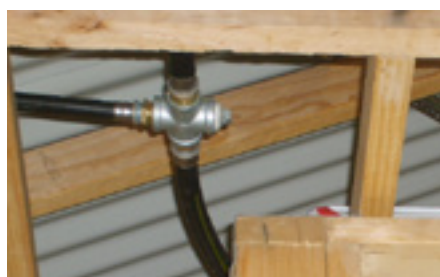
Two multilayer end connectors to ISO 7-1

(c) Reversion to standard thread

FIGURE 5.2 MULTILAYER PIPING SYSTEM—REVERSION FITTINGS



Expansion tees (as in two photos above) are great for future appliance installations but they don't satisfy the AS/NZS5601 as reversion fittings.



Approved galvanised cross point with female BSPT threads as a reversion fitting.



Reversion to copper tube.

Plumbing Bulletin

Plumbing Certificates of Compliance

Plumbing Advisory Note – Issued November 2017

Plumbing Certificates of Compliance are legal documents that protect both plumbers and customers.

Certificates of Compliance:

- explain what plumbing work has been done by the plumber
- confirm a plumber is licensed or registered to perform the work they have done
- confirm the plumbing installation and equipment meet appropriate Australian and South Australian laws, regulations and standards.

When are Certificates of Compliance needed?

Plumbers must provide a Certificate of Compliance to the customer and the Office of the Technical Regulator (OTR) within seven days of finishing plumbing work, except for:

- changing tap washers
- clearing blocked sanitary drainage pipework
- replacing, altering, repairing, maintaining or disconnecting domestic tapware.

If the plumber has installed or altered in-ground sanitary drainage pipework, they must also give the customer and the OTR an 'as-constructed drainage plan' showing the positions and dimensions of pipework, fittings and equipment that make up the sanitary drainage system, within seven days of finishing the work.

Legislative requirements

Plumbing Certificates of Compliance verify plumbing work and equipment meet the requirements of the *Water Industry Act 2012* and *South Australian Public Health Act 2011*, and applicable regulations and standards.

Plumbing work must be done according to the plumbing Standard published by the Technical Regulator under Section 66 of the *Water Industry Act 2012*.

Licensing requirements are under the *Plumbers, Gas Fitters and Electricians Act 1995*.

Requirements for customers to maintain plumbing and equipment on their property is under Section 69 of the *Water Industry Act 2012*.

Plumber's responsibilities

By law:

- only people licensed or registered to work as plumbers can perform plumbing work
- only people with an appropriate licence can legally fill in and submit a plumbing Certificate of Compliance
- plumbers must give Certificates of Compliance to customers that detail the plumbing work done at a property.

Penalties for not supplying a plumbing Certificate of Compliance include warnings, disciplinary interviews, and potential legal action, which is detailed in the *Water Industry Act 2012*.

Customer's responsibilities

By law:

- property owners must keep plumbing and equipment on their property (up to the water meter or sewer connection point) in good condition and make sure it complies with the relevant technical or safety requirements.
- owners should retain Certificates of Compliance, as they can be relied upon for ensuring the work performed by a plumber meets the requirements of the *Water Industry Act*.

What a Certificate of Compliance looks like

- Plumbing Certificates of Compliance can be completed electronically or on paper.
- **Paper Certificates of Compliance cannot be used after 30 June 2018.**
- Electronic Certificates of Compliance can be emailed to customers, or printed and mailed.

PLUMBING CERTIFICATE OF COMPLIANCE			
under the Water Industry Act 2012			
Certificate Number: P550579			
Owner/Client name		John Smith	
Installation Address		11 WAYMOUTH STREET, ADELAIDE, SA 5000	
Premises Type		House/Domestic	
Date of Work		Started: 27/11/2017	Finished: 27/11/2017
Council		Adelaide City Council	
Work Category	Work Type	Work Performed	
New Install	Above Ground Sanitary Plumbing	In suite on first floor	
New Install	Heated Water	Make/Model: ACME Hot Water Capacity: 20 litres Serial No.: M123456	Heated Water Type: Instantaneous Energy Source: Gas
New Install	Non Drinking Water System	In-ground	
New Install	Rainwater System	Above-ground storage tank	
New Install	Sanitary Plumbing	Bathroom Ensuite Kitchen Laundry WC	
REGISTERED PLUMBING WORKER: I certify that the plumbing and equipment referred to above complies with the Water Industry Act 2012 including Regulations and Standards and/or the South Australian Public Health Act 2011.			
Name		Plumbing Worker	
Licence Number		PCE584	
Date Certified		27/11/2017	
RESTRICTED GAS WORKER: I certify that auxiliary gas work I have performed meets the requirements of the Gas Act 1997 and Regulations.			
Name		Plumbing Worker	
Licence Number		PCE584	
Date Certified		27/11/2017	
CONTRACTOR/AUTHORISED PERSON: I certify that the plumbing and equipment referred to above complies with the Water Industry Act 2012 including Regulations and Standards and/or the South Australian Public Health Act 2011. Also where applicable, I am authorised to perform auxiliary gas fitting and/or electrical work detailed above meets the requirements of the Gas Act 1997 and Regulations and the Electricity Act 1996 including Regulations and Standards.			
Name		John Contractor	
Business Name		Plumbing Contractor	
Licence Number		PCE1238	
Phone No.		0811111111	Email: worker1@treat.com
Address		11 WAYMOUTH STREET, ADELAIDE, SA 5000	
Date Certified		27/11/2017	
The Technical Regulator does not endorse the contents of this eCoC. The Technical Regulator does not accept responsibility for the truth or accuracy of the contents of this eCoC and will not be held liable for any loss or damage suffered in consequence of reliance upon the contents of this eCoC.			
Office of the Technical Regulator, GPO Box 520 ADELAIDE SA 5001 Email: otr@sa.gov.au Office: 0800 760 011 Information for customers and registered workers only - please do not publish			

Non-Drinking Water (Recycled Water)

Plumbing Advisory Note - Issued February 2018

The Office of the Technical Regulator (OTR) regulates on-site non-drinking (recycled) water installations.

The *National Construction Code*, Volume 3 Part B3 sets out the requirements for design, construction, installation, replacement, repair, alteration and maintenance of any part of a non-drinking (recycled) water service.

Plumbing and irrigation contractors carrying out work on non-drinking (recycled) water services for residential, commercial, industrial, recreational properties and areas in South Australia must:

- ensure all work complies with AS/NZS 3500 Part 1
- book an audit of all in-wall and in-ground non-drinking water installations with the OTR, which can be done by calling 1300 884 055 or booking online at www.plumbbooking.sa.gov.au no later than 3pm the day before an audit is required.
- ensure the property is accessible at the nominated inspection time for in-wall and in-ground pipework. If the work is not inspected within 20 minutes of the booking time, plumbers may backfill the in-ground pipework.
- provide the OTR and the owner/occupier of the property with a Certificate of Compliance within seven days of completing the work.

Non-Drinking Water Areas

SA Water is currently supplying non-drinking (recycled) water to the following areas:

- Bowden
- Lochiel Park (Campbelltown)
- Mawson Lakes
- Seaford Heights
- Seaford Meadows

Other water entities are supplying non-drinking water to areas including:

- Lightsview
- Mawson Green (Meadows)
- Northgate
- Salisbury
- St Clair

Cross-connection test (SA Water sites)

A cross-connection test must be conducted by the plumbing contractor who installs the non-drinking water system. In addition, plumbing contractors are required to book a cross-connection test with SA Water by calling 7424 1360 by 3pm the day before the test is required.

Cross-connection test (other water entity sites)

A cross-connection test must be conducted by the plumbing contractor who installs the non-drinking water system. An additional cross-connection test is to be performed by the water entity's plumbing contractor at the time the non-drinking water meter is installed. It is the responsibility of the plumber, builder or owner to contact the developer to arrange the cross-connection test.

A Certificate of Compliance for the non-drinking water (in-wall or in-ground) is forwarded to the owner/developer of the property and the OTR within seven days of completing the work.

Plumbers are required to:

- install a loop at the location of the water meter to ensure that only drinking water is used to conduct the cross-connection test (see diagram below)



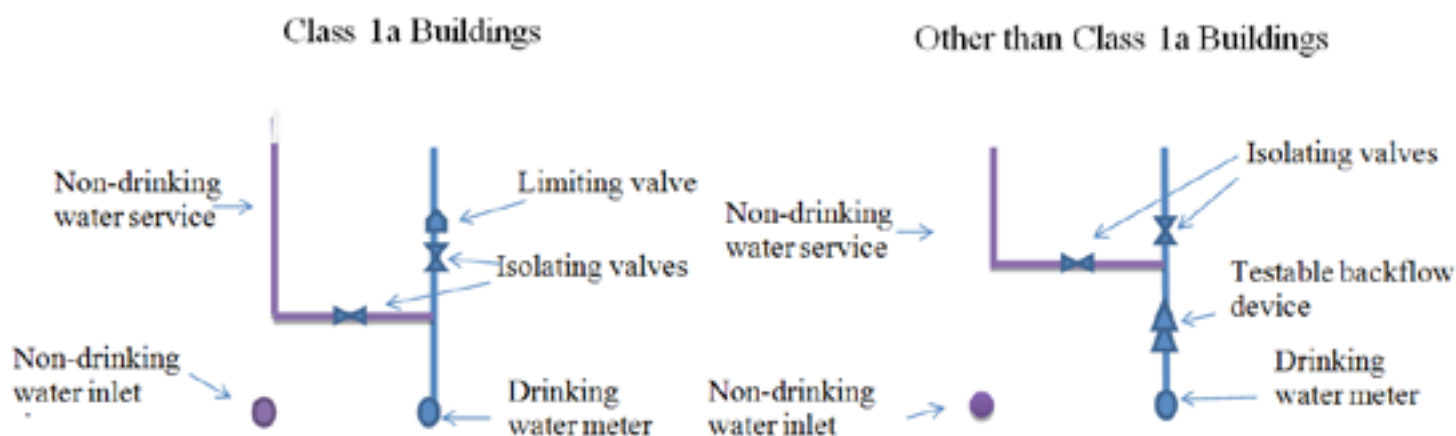
- install compliant signage on taps (as per image above)
- ensure all pipework, including the risers to garden taps, is purple
- ensure all exposed plastic pipework is protected from direct sunlight.

Maintenance

Property owners with non-drinking (recycled) water services are required under the *Water Industry Act 2012* (S69) to ensure that those services are maintained in compliant condition.

Compliance

The OTR conducts audits of non-drinking water installations including final inspections. The *Water Industry Act 2012* has provisions for the OTR to expiate/prosecute plumbers for non-compliant plumbing installations.



Outcome of Consultation on Changes to the Plumbing Audit Process

Subsequent to our article and insert into recent issues of Regulation Roundup (ie 39 & 40) entitled '**Proposed changes to the plumbing audit notification process**', the following is advised:

The consultation period has ended and the feedback has been reviewed. The OTR would like to take this opportunity to thank everyone who participated in this process.

The OTR will continue to notify plumbers via SMS, of OTR attendance at an audit for sanitary drainage bookings.

To align with the new eCoC system (which will completely replace the paper CoC by July 2018), the OTR is working on a trial online notification format that will be linked to the online plumb-booking system. Plumbers will be able to view their allocated audits for sanitary drainage bookings by logging onto the portal with a new tab called '**my plumbbooking**'.

This tab will be linked directly to our scheduler's dashboard. When the scheduler allocates an audit to an inspector it will automatically be dropped into this tab, notifying the contractor that an audit has been confirmed, and will include the contact details of the relevant inspector.

The change addresses industry feedback that the notification process is useful and updates to current technology.

When the contractor makes a booking, it is imperative that the information entered into the system is accurate.

Contractors will need to monitor the '**my plumbbooking**' tab for their audit confirmations.

All other conditions for on-site audits will remain the same and the SMS notification will continue until the new system has been trialled and implemented.

For further information regarding these proposed changes please contact Todd Lewis via email: todd.lewis@sa.gov.au

Attention All Trades: Skill Training Videos and Online Courses

The National Energy Productivity Plan (see *1) 2015 supports SA Government to work with industry to improve compliance with the energy efficiency requirements of the NCC. (*Measure 32: Improve compliance with building energy efficiency regulation*)

With NEPP (COAG) funding, South Australia's **National Energy Efficient Building Project** (see *2) has recently co-funded several Cross-Industry Partnerships to produce a series of skill training videos and online courses that may be useful to all trades involved in residential building. Many options are free online and via APPs, while other Certificated units attract a moderate fee.

- 1) Building seal for energy efficiency (Master Builders Association and partners)
<https://www.youtube.com/user/mbav1875/videos>
- 2) Trade skills for energy efficient building (Green Building Institute and partners)
<https://www.greenbuilding.org.au/Green-Builders/Energy-Smart-Builders.htm>
- 3) Residential energy code compliance and integrated energy systems design (Pointsbuild and partners)
<https://www.pointsbuild.com.au/energy-efficiency-skills-program>
- 4) Residential design for energy efficiency (Green Building Institute and partners)
<https://www.greenbuilding.org.au/Designing/Energy-Efficient-Design.htm>
- 5) Trade skills refresher for energy efficient homes (Green Building Institute and partners)
<https://www.greenbuilding.org.au/Green-Tradies/Applied-Trade-Skills.htm>
- 6) Selecting and installing glazing and window treatments for energy efficiency (Australian Windows Association and partners)
<https://tinyurl.com/yd2htxk6>
<https://tinyurl.com/ybge4fj8>
<https://tinyurl.com/yckl8vgb>
- 7) Best practice trade skills (Supply Chain Sustainability School & TAFE)
<http://www.supplychainschool.org.au/resources/online-resources/videos/28/Building-Energy-Efficiency-into-your-Residential-Project>
- 8) Workshops on the fundamentals of building ventilation, seal and vapour management and use of Blower-Door and Thermal-Camera building diagnostics will also be held in Adelaide in May 2018 as part of the NEEBP Skills Training program. Contact Sabina (email below) for further details.

For further information on National energy efficient building initiatives see:

- 9) <https://www.energy.gov.au/government-priorities/energy-productivity-and-energy-efficiency/national-energy-productivity-plan>
- 10) <http://dpc.sa.gov.au/what-we-do/services-for-business-and-the-community/energy-efficiency/national-energy-efficiency-building-project>

Contact: Email Sabina.douglas-hill@sa.gov.au or Phone: 08 8226 5218

Contact list

be energy safe

Electrical Technical Advice

Office of the Technical Regulator
Level 8, 11 Waymouth Street, Adelaide
Phone: (08) 8226 5518 (8:30am–4:30pm)
Fax: (08) 8226 5529
Email: otrmail@sa.gov.au

Electrical Certificates of Compliance

Available in person from the following agencies:

Office of the Technical Regulator
Level 8, 11 Waymouth Street, Adelaide

NECA
213 Greenhill Road, Eastwood
Phone: (08) 8272 2966

Lawrence & Hanson
All stores

MM Electrical
All stores

Middendorp
All Stores

Rexel Australia Ltd
All stores

P & R Electrical Wholesalers
All stores

CNW Wholesalers
All stores

Service SA Outlets
EDS Centre, 108 North Terrace, Adelaide and
Regional Areas

Gas Technical Advice

Office of the Technical Regulator
Level 8, 11 Waymouth Street, Adelaide
Phone: (08) 8226 5722 (8:00am–5:00pm)
Fax: (08) 8226 5866
Email: otr@sa.gov.au

Gas Certificates of Compliance

Personal collection available from:

SA Water
250 Victoria Square, Adelaide

Gas Works
All stores

Gas Appliances Plus
Unley

Norm's Plumbing Supplies
John Street, Mt Gambier

Samios Plumbing Supplies
All stores

Scott's Plumbing
66 O.G. Road, Klemzig

Northern's Plumbing Supplies
All Stores

Tradelink
All stores

Reece Plumbing
All stores

Personal collection/orders
available from:

Service SA Outlets
EDS Centre, 108 North
Tce, Adelaide and
Regional Areas

General Information

Licence and Address Change
Consumer & Business Services
Phone: 131 882
Email: occupational@sa.gov.au

Appointments and Information
SA Power Networks Builders & Contractors Line
Phone: 1300 6500 14
Fax: 1300 6500 16

Australian Standards
Standards Australia
www.standards.com.au

AGA
Phone: (03) 9580 4500
www.gas.asn.au

Training

Gas

**Master Plumbers Association
(formerly PIA)**
1 South Road, Thebarton
Phone: (08) 8292 4000
Fax: (08) 8292 4040

Technical Advisory Centre P/L
4/543 Churchill Road, Kilburn
Phone: (08) 8162 5640
Fax: (08) 8162 5638
www.techad.com.au

Gastrain
U1, 61-65 Tapleys Hill Road, Hendon 5014
(PO Box 83, Royal Park 5014)
Phone: (08) 8447 7783
Phone: 1300 955 583
Fax: (08) 8447 7753
www.gastrain.com.au

Electrical and Gas

TAFE info (for all training enquiries)
Phone: 1800 882 661

Peer Veet
Rescue and Resuscitation, First Aid
& other Industry related courses:
1042 Port Road, Albert Park
Phone: (08) 8348 1200
www.peer.com.au

Electrical

**ATEC (Adelaide Training and
Employment Centre)**
Electrical Rescue & Resuscitation Certificate
Phone: (08) 8240 1233
www.atec.asn.au

Power Lines/Cables

Clearance Zones
Between vegetation and power lines or building/
structures and power lines contact the

Office of the Technical Regulator
Phone: (08) 8226 5667

SA Power Networks (SAPN)
Phone: 13 12 61

For locations of Gas, Electricity or Telecommunications

"Dial Before You Dig"
This service is still available when doing
emergency excavations at short notice.
Phone: 1100
www.1100.com.au

For after hours locations or gas emergency (including LPG)

Origin Energy LPG: 1800 808 526
Kleenheat: 1800 093 336
Elgas: 1800 819 783
APA Group Gas leaks: 1800 427 532
(1800 GAS LEAK)

For gas or electrical major incident reporting 24 hours / 7 days (South Australia only)

Office of the Technical Regulator
Phone: 1800 558 811
This number also appears in the 24 hour
emergency numbers section at the front of the
South Australian White Pages

Gas Trade contact

APA Group system operator
Phone: 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

**Australian Liquefied Petroleum Gas
Association (ALPGA)**
www.alpga.asn.au

**Australian Competition and Consumer
Commission (ACCC)**
www.accc.gov.au

**Australian Gas Networks Ltd
(formerly Envestra)**
www.australiangasnetworks.com.au

Elgas
www.elgas.com.au

Origin Energy
www.originenergy.com.au

Kleenheat
www.kleenheat.com.au

Australian Standards
www.infostore.saiglobal.com/store/

Plumbing Technical Advice

Office of the Technical Regulator
Level 8, 11 Waymouth Street, Adelaide
Phone: 1300 760 311 (8:30am–4:30pm)
Email: otr.plumbenquiries@sa.gov.au
www.sa.gov.au/otrplumbing

Plumbing Certificates of Compliance

Available in person from: **Service SA Outlets**

www.sa.gov.au/otr