

energy

Bulletin

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Energy Bulletin Reader Satisfaction Survey

This edition of the Energy Bulletin includes a reader satisfaction survey designed to gather information that will allow us to determine what we can do to improve our relevance in the industry and meet industry needs related to the safe use of electricity and gas.

The survey seeks feedback from industry participants about the Bulletin format, information quality, circulation and distribution. Survey responses received will assist us to improve and adapt the Bulletin to meet industry requirements.

It will only take a few minutes to complete the survey and return it to us in the reply paid envelope.

If other people in your organisation also read the Bulletin please make copies and return them addressed to EnergySafety PO Box 135 Cannington WA 6987.

Alternatively, anyone may complete the survey online at www.energysafety.wa.gov.au and click on the link to Reader Satisfaction Survey.

If you want to subscribe to our email alert sent each time a new Bulletin edition is issued you can also do this at www.commerce.wa.gov.au/EnergySafety/PDF/EnergyBulletins/index.html

The Bulletin can be read online or downloaded for later use. All past editions of the Bulletin are available at this site.



KEN BOWRON
DIRECTOR OF ENERGY SAFETY

We need Electrical Inspectors

Can you see yourself joining EnergySafety's electrical inspection team?

If so and you have at least five years on-the-job experience as an electrician, please give the Chief Electrical Inspector, Michael Bunko a call on 9422 5200



New RCD Campaign

In the past 18 years 31 people have been electrocuted in homes in Western Australia. Of these, 25 deaths could have been prevented if RCDs had been fitted.

In an effort to reduce the number of deaths from electrocution and increase awareness of the importance of installing at least two RCDs, EnergySafety will be launching a new advertising campaign in December.

Since 2000, it has been compulsory for all new homes to have at least two RCDs fitted as part of the initial electrical installation. New legislation, introduced in August 2009 requires people selling their home and landlords to install a minimum of two RCDs to protect all power points and lighting circuits. Home sellers are required to install the RCDs before the sale of their house, while landlords need to install the devices before a new tenant takes up residency or in any case by 9 August 2011.

Two RCDs must be installed to avoid total darkness and loss of all power if one RCD operates. It also reduces the possibility of spurious operation caused by low level leakage current in some appliances.

The advertising campaign, to launch on Boxing Day, will target all home owners, landlords and tenants, not just those selling or renting properties. The campaign will cover television, radio, press and online advertising and will aim to persuade the public to install two RCDs and to test the device every three (3) months.

Electrical contractors attending properties constructed prior to 2001 may take the opportunity to draw their client's attention to the campaign and suggest they install the RCDs, even if they have no immediate intention to sell or lease. RCDs save lives and prevent fires and are a must in any home.

Further details can be found at www.energysafety.wa.gov.au/rcd

Release of Australian Standards AS5601 – 2010 Gas Installations

The much anticipated Australian Standards AS5601 – Gas Installations is scheduled for release in late November early December. The final edition of the standard is still under embargo and cannot be released, however a public comment copy has been released and this indicates the following changes:

- The standard will be published in two parts; part one relates to fixed gas installations, part two refers to mobile gas installations installed on caravans, mobile homes and boats including house boats. The standard does not cover gas for propulsion.
- Each part of the standard has sections where compliance is mandatory and sections that are 'deemed to comply'.
- The new standard covers New Zealand.
- An appendix has been added covering special considerations to be taken into account for gas installations in high rise buildings.
- The pipe sizing tables have been reworked to make them consistent over gas and material types. The New Zealand graphical method of pipe sizing has also been included.

To enable gas fitters to better understand changes within AS5601 and also national licensing issues, EnergySafety is planning a number of presentations to industry commencing late February 2011 through to June 2011.

It is anticipated that these presentations will be held at Bentley, Joondalup, Midland and Mandurah followed by the regional centres of Albany, Bunbury, Kalgoorlie and Geraldton. Smaller presentations will be conducted at Esperance, Narrogin, Merredin, Dalwallinu, Karratha, Port Hedland and Broome.

The actual dates will be advertised upon confirmation of the release of AS 5601. There will also be the opportunity for sponsors to attend these events.

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Alternative formats of this publication may be available to meet the needs of people with disabilities.

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Changes within the Gas Industry

Origin Energy recently relocated from Kwinana to new premises at Jandakot. All Notices of Completion, where Origin Energy is the nominated gas supplier are to be sent to their new mailing address:

Origin Energy
Unit 1, Level 1
2 Sabre Crescent
JANDAKOT WA 6164

West Australian Gas Networks Pty Ltd (ABN 90 089 531 975), [WAGN], formally WestNet Energy announced the change of name to take effect from 1 August 2010. Where AlintaGas is the nominated gas supplier all Notices of Completion are to be sent to *(no change to the postal address)*:

West Australian Gas Networks
PO Box 3006
SUCCESS WA 6964

To mark the occasion and the rebranding of West Australian Gas Networks, staff of the WAGN Inspection and Audit team and the Gas Inspection Branch of EnergySafety posed for a photograph for inclusion in the Energy Bulletin. The Inspection and audit team is headed up by Russell Godsall (Network Support Manager) and Kevin Hooper (Chief Gas Inspector EnergySafety).



WAGN Inspection and Audit team and EnergySafety Gas Inspection staff.

Safety of solar photo-voltaic (PV) installations

As reported by the Clean Energy Council, the total number of Australian households using solar energy increased by 60% in the period 2002 to 2008. By July 2009, more than 41,000 homes across Australia had installed solar PV systems. With the recent federal government incentives, it is anticipated that there will be a further significant increase in the number of domestic photovoltaic system installations over the next few years. Such escalation in demand for solar PV systems underpins a need to ensure and monitor that solar PV installations are being properly carried out and operating safely.

Solar photo-voltaic systems – the basics

PV cells convert sunlight into DC current, which is then converted to AC by an inverter and supplied to household appliances (Figure 1). Any excess power not consumed within the installation can be fed back into the electricity network.

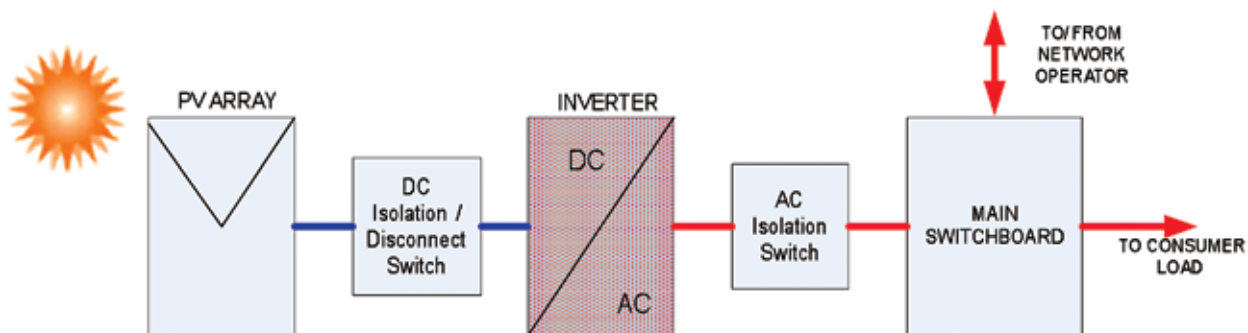


Figure 1: Typical block diagram of a PV installation

PV arrays are made up of modules connected in series and parallel circuits to match the corresponding input characteristics of the inverter. A DC operating voltage of between 200 and 600 V is common for residential applications, which falls within the low voltage band (50-1000 Vac or 120-1500 Vdc).

Electrical safety requirements for installation of solar panels in Western Australia

Privately-owned solar PV generating installations connected to a network operator's distribution system in WA must comply with applicable regulatory requirements, including:

- *Electricity Act 1945* and Regulations;
- AS/NZS 3000:2007;
- WA Electrical Requirements (WAER);
- The network operator's technical rules;
- The network operator's consumer connection agreement;
- AS 4777, Grid connection of energy systems via inverters – Installation requirements; and
- AS 5033, Installation of photovoltaic (PV) arrays.

Design of PV installations must be undertaken by persons competent in electricity network engineering and familiar with the effects of embedded generation sources on a distribution network.

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Notably,

- All components of the electrical installation must be properly selected and installed for the application (Clause 1.7 of AS/NZS 3000:2007).
- Installation work practices must comply with the Wiring Rules and manufacturer's instructions.
- Wiring systems and cables must be selected and installed to comply with the Wiring Rules and be adequately protected against external influences, including mechanical, UV and environmental damage.
- Where the PV array cabling could be confused with other wiring systems, appropriate identification (see Figure 2) must be provided at regular intervals (Clause 3.5 of AS5033:2005).

CAUTION: DC LV CABLE - DO NOT DISCONNECT UNDER LOAD

Figure 2: PV array cables should be clearly identified

- AC and DC circuits must be properly segregated from each other.
- A correctly-sized DC switch/isolator must be installed upstream from the inverter i.e. DC side of the installation. An AC rated isolator is not suitable for this application.



Figure 3: Typical DC isolator/disconnect switch

- An AC isolation switch/isolator must be provided for the AC side of the installation (after the inverter).
- All switches must be labelled as per Appendix G of AS/NZS 5033:2005.
- Dual supply labels as per clauses 5.5.2 (a) and 5.5.3 of AS 4777.1: 2005 shall be installed at the switchboard to which the inverter is connected (including any intermediate switchboards) as required.



Figure 4: Typical warning label

- A **shutdown procedure** must be provided and located adjacent to the inverter – refer to Figure G4 in AS/NZS 5033:2005 for guidance.

Personnel involved in either installation or repair of PV systems need to remain mindful that, even with reduced daylight, the cables between the PV modules and the inverter remain energised with dangerously high DC voltages. Switching the DC switch/isolator off will isolate the circuit downstream of the isolator but the upstream side (from the solar array to the DC isolator) will still be live.

It is also strongly recommended that all exposed conductive parts and frames of solar photovoltaic arrays, including any structural metalwork (e.g. module frames, structures) be bonded to earth.

AS/NZS 3012:2010, Electrical installations – Construction and demolition sites released

A new version of AS/NZS 3012, Electrical installations – Construction and demolition sites was published in June 2010. It supersedes the older 2003 version but has the same objective – to establish sound practices for the safe use of electricity at construction and demolition sites. The new version has been updated to reflect changes in the latest edition of AS/NZS 3000 and incorporates revised definitions and clarifications on a few ambiguous issues from the previous standard.

It is critical for electrical contractors and workers on construction and demolition sites to familiarise themselves with this standard and the changes.

A copy can be purchased from Standards Australia.

The key changes include (but are not limited to) the following:

- All inverters used on construction and demolition sites shall comply with the requirements of AS/NZS 4763.
- A Risk Assessment shall be carried out to evaluate the risks of mechanical and environmental damage from construction activities. If a risk of damage exists, the wiring shall be adequately protected as prescribed in the standard.

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- Single-phase socket-outlets in the following situations shall be individually controlled by double-pole switches: portable generators fitted with integral socket-outlets, portable inverters fitted with socket-outlets, portable socket-outlet assemblies, transportable structures that are connected by a flexible cord to the supply, plug and socket-outlets on equipment that is supplied by means of a plug and socket.
- The use of electrical portable outlet devices, such as domestic-type power boards (Figure 1) are prohibited on construction and demolition sites.



Figure 1: Socket outlet assemblies such as domestic power boards are not permitted on construction sites

- The use of Portable Socket Outlet Assemblies (PSOA) (see Figure 2) is recommended. PSOA are classified as a 'declared article' and must be approved and marked accordingly. They must be double-insulated, be double-pole switched, be RCD-protected and be at least IP33 rated.



Figure 2: Portable Socket Outlet Assemblies (PSOA)

Electrical switchboards on construction sites

Temporary electrical supply installations are often found on commercial construction sites. Electrical contractors should be aware that under the Occupational Safety and Health Regulations 1996, it is the sole responsibility of the builder to ensure a temporary electricity supply is provided once work on the site has commenced.

On smaller single storey sites, usually a single temporary switchboard is all that is required however, larger sites may warrant multiple switchboards including some permanent switchboards in more than one location onsite.

Much confusion has arisen as to who is responsible for installing the correct number and type of switchboards to suit a particular site, which has resulted in an increase in the number of substandard switchboards found onsite. Recent investigations have uncovered construction sites, where builders without the required electrical knowledge or skills, have installed an incorrect switchboard/s or have taken budgetary shortcuts with the switchboard installations to minimise costs.

These inadequate switchboards are potential death traps and may contribute towards work related fatalities, serious accidents and shocks or fire damage to property.

The Australian Standard that electrical contractors should be adhering to is AS/NZS 3012:2010, Electrical Installations Construction and Demolition Sites. It specifies:

- Building, excavation, compressed air and diving work.
- Sections of buildings which are undergoing structural modifications (i.e. extensions, major repairs or demolition).
- Construction and maintenance of roads, airfields, bridges, railways or tramways.
- Dredging or salvaging work.
- Relocatable construction premises such as demountable buildings.
- Work involving lighting and luminaires.
- Laying, lining or maintenance of pipes or cables.
- Work involving explosives.
- Work facilities including site offices, cloakrooms, meeting rooms, dormitories canteens, toilets, lift shafts and appliances etc.
- Land clearing involving explosives to make way for building, excavation, compressed air and diving work.

The requirements of AS/NZS 3012:2003 apply to all construction and demolition sites in conjunction with the requirements of AS/NZS 3000:2007, Wiring Rules such as, all final sub circuits on switchboards are to be protected by a residual current device (RCD) with a maximum rated residual current of 30mA.

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Failing to comply with these requirements can result in a breach of the Electricity (Licensing) Regulations 1991.

The visual inspection, testing and checking of switchboards can only be performed by licensed electrical workers. Switchboards are required to be inspected every six months at a minimum, with inspection results to be kept on site. Equipment that does not pass testing must be removed from site for repairs and then retested before it is returned to site.

For more information on electrical switchboards on construction sites, you can download AS/NZS 3012:2003 from www.saiglobal.com.

Complaints against contractors who are not issuing Electrical Safety Certificates

EnergySafety has been receiving many complaints from consumers who have not received a copy of an Electrical Safety Certificate for electrical installing work carried out at their premises. Electrical Safety Certificates are a guarantee to the consumer that the electrical installing work carried out by an electrical contractor is safe and complies with the Regulations.

Regulation 52B of the Electricity (Licensing) Regulations 1991 stipulates that electrical contractors who carry out any electrical installing work, are to complete a Certificate of Compliance (Electrical Safety Certificate).

Contractors are reminded that a copy of this certificate is to be issued to the person for whom the work was carried out within twenty eight (28) days of the completion of the work. Failure to provide one is considered a breach of the Regulations.

An Electrical Safety Certificate is not considered to be complete unless:

- it has been completed by the relevant electrical contractor or by an employee who has been given written authority by the electrical contractor in a form approved by the Director Energy Safety;
- it has a unique identification number;
- the electrical contractor's or electrical worker's licence number has been included;
- it clearly and accurately describes the electrical installing work which was undertaken;
- the address of the installation and the date the work was undertaken has been included; and
- it certifies that the electrical installing work has been checked and tested and complies with the Regulations.

Please be mindful that information provided which is found to be false or misleading is an offence under Regulations 52B(7).

As per Regulation 52B(2), for audit purposes, electrical contractors are to retain their copy of the certificates for a period of five (5) years.

If you require more books of Electrical Safety Certificates, please contact EnergySafety's Licensing Office on 9422 5282.

An update on notices

In the July 2010 issue of the Energy Bulletin No. 51, EnergySafety published a current list of valid notices and their corresponding reference numbers. This was to alert electrical contractors to redundant notices, which are still being utilised by contractors. Notices with the reference number ESWA E001 0906, are no longer accepted by EnergySafety.

The valid notices that this Office will accept have the reference numbers as detailed:

- ESWA E001 0109;
- ESWA E001 0509;
- ESWA E001 1109;
- ESWA E001 0510; and
- ESWA E001 0810 (version 1.5).

Please be aware that ESWA E001 0509 had been omitted from the list of acceptable notices in the last issue of the Bulletin.

2010 Electrical Installation Inspectors' Conference

EnergySafety's Electrical Installation Inspector's Conference was held at Ascot Racecourse on 27 July 2010. The annual event brings together Inspectors' from all over Western Australia to hear specialist guest speakers providing the latest updates on issues impacting the electrical industry.

Inspectors' from Western Power, Horizon Power, Rio Tinto, BHP Billiton Iron Ore and Nickel West were given presentations from leading speakers in their fields, including special guest presenter Neil Dennis, Associate Director and Senior Electrical/Mechanical Engineer from AECOM who spoke on the complexities of Hazardous Area Inspections. Other topics included National Harmonisation of Legislation, updates on Australian Standards, Code of Practice for inspectors, reporting damage, investigative techniques and photovoltaic systems – installations and inspections.

Requirements for electrical installations on recreational marine craft

Boat owners and those working in the marine industry have an obligation to ensure the condition of recreational marine craft complies with Australian safety requirements. This safety obligation is extended to all electrical installing work (including maintenance and repairs) on the marine craft, which can only be performed by a licensed electrical contractor.

Electrical contractors must firstly ensure that all electrical installing work complies with the AS/NZS 3000:2007, Wiring Rules. This also applies to electrical installations on imported boats.

If the electrical installing work is subject to a notice, it is required to be submitted to the network operator who supplies power to the boat from the marina. EnergySafety becomes the default network operator where the network operator cannot be identified (i.e. stand alone power systems).

For low voltage installations, contractors will need additional guidance from AS/NZS 3004.2:2008, Electrical installations – Marina and recreational boats Part 2: Recreational boats installations. This standard, which was published on 18 November 2008, was developed to provide designers, manufacturers and builders of small recreational boats with safety requirements and to meet the requirements of the new edition of the Wiring Rules. It is relevant for recreational boats that have:

- a length of up to 50m;
- have been specifically designed for use on inland water or at sea;
- direct current systems which operate at a nominal voltage not exceeding 1,500 volts;
- single phase alternating current systems that operate at levels not exceeding 1,000 volts; and
- three phase alternating current systems which operate at levels not exceeding 1,000 volts.

It is not applicable for small boats equipped with a battery which supplies power to circuits for starting of engines as well as navigational lighting and that can be recharged from an inboard or outboard engine driven alternator.

It supersedes AS/NZS 3004:2002, Electrical installations – Marina and Pleasure Craft at Low Voltage and differs from its predecessor in that it is now presented as two parts. Part 1 deals with electrical installations for marinas while Part 2 details the installation requirements of electrical systems in recreational boats. Part 2 is more comprehensive as it provides extensive guidance for the design, installation and ongoing authentication of on-board installations.

If a person or importing agent is selling an imported recreational boat, they must ensure the electrical equipment on board (i.e. prescribed items such as circuit breakers, switches, refrigerators and microwave ovens etc) complies with Western Australian legislation.

If you have issues with conflicting requirements of standards, are unsure about the requirements for the approval of imported electrical equipment or require assistance on identifying approval marks, please contact our Electrical Inspection Branch on 9422 5261.

RCDs for houses being demolished

There has been some confusion as to whether residual current devices (RCDs) are to be installed in residences that are soon to be demolished for development purposes.

If the buyer of a property intends on demolishing the residence, RCDs do not have to be fitted at the point of sale provided the Director of Energy Safety is supplied with a written statement from the owner (vendor) signed by the person to whom the premises are to be transferred (buyer), that the premises are to be demolished by a specified date (which cannot exceed six (6) months after the transfer of the premises).

If the demolition of the residence has not occurred within the above mentioned period, then the new owner of the property must install two (2) RCDs for the lighting and power circuits.

Infringements for EC advertising

Electrical contractors, who are presently preparing advertising material for 2011, are reminded of the requirements of Regulation 45(1) of the Electricity (Licensing) Regulations 1991. The Regulations stipulate that an electrical contractor must ensure their licence number conspicuously appears in any advertisement that advertises their business. A conspicuous size is that which is not less than 50% of the largest lettering used in the advertisement.

An advertisement is defined as a public announcement which has been created to attract public interest or to bring in business. These can include advertisements on radio, television, newspapers, flyers, internet web pages, business cards, signage on vehicles, buildings, stationery and business and community directories such as the Yellow Pages and Big Colour Pages.

Displaying your EC number helps to easily identify unlicensed persons seeking electrical work.

An electrical contractor was recently issued with an Infringement Notice for \$1,000 for placing a radio advertisement with a local radio station without any mention of the licence number.

**Prosecutions for breaches of electricity legislation
1 June 2010 to 31 July 2010**

Name (and suburb of residence at time of offence)	Licence No.	Legislation and Breach	Offence	Date of Offence	Fine (\$)	Court Costs (\$)
<i>Mark Douglas (High Wycombe)</i>	<i>NLH</i>	<i>E(L)R Regulation 19(1)</i>	<i>Carried out electrical work without holding an electrical workers licence</i>	<i>16/06/10</i>	<i>1,200.00</i>	<i>649.70</i>
<i>Richard Fowler (Boulder)</i>	<i>EW134754</i>	<i>E(L)R Regulation 19(1)</i>	<i>Carried out electrical work without holding an electrical workers licence</i>	<i>26/07/10</i>	<i>1,500.00</i>	<i>676.70</i>
<i>Richard Fowler (Boulder)</i>	<i>EW134754</i>	<i>E(L)R Regulation 33(1)</i>	<i>Carried on business as an electrical contractor without a licence</i>	<i>26/07/10</i>	<i>*</i>	<i>*</i>
<i>Nathan Haagensen (Geraldton)</i>	<i>EW142647</i>	<i>E(L)R Regulation 50(1)</i>	<i>Failed to provide adequate supervision for an employed electrical apprentice</i>	<i>12/07/10</i>	<i>4,000.00</i>	<i>649.70</i>
<i>Brenden Michael Cook T/As BMC Electrical (Craigie)</i>	<i>EC007361</i>	<i>E(L)R Regulation 52(1) (13 breaches)</i>	<i>Failed to submit a Notice of Completion to the Network Operator on completion of the electrical installing work</i>	<i>Between 08/01/08 and 25/02/08</i>	<i>2,000.00</i>	<i>771.70</i>
<i>Alan Taylor T/As Blue Tongue Electrical (Myaree)</i>	<i>EC007281</i>	<i>Regulation 52(3)</i>	<i>Submitted a Notice of Completion to the Network Operator when the electrical installing work was not complete</i>	<i>16/06/10</i>	<i>1,000.00</i>	<i>649.70</i>

Legend NLH No Licence Held
 E(L)R Electricity (Licensing) Regulations 1991
 * Global Fine or costs issued

g a s | f o c u s

Mobile Gas Installations

Mobile gas installations are just that, mobile vehicles that incorporate a gas installation. These include, but are not limited to, caravans, marine craft, camper-trailers, catering vans, mobile homes and fifth wheelers.

Division 7 & 8 of the Gas Standards Gasfitting and Consumers Gas Installations Regulations 1999 and Section 6 of AS 5601, Gas Installations sets out the requirements for mobile gas installations.

EnergySafety carries out any associated inspection requirements for mobile installations as there is no fixed gas supplier.

It is becoming increasingly popular for people to convert buses and vans to mobile homes and campervans. In some instances the owners carry out much of the interior fit out work themselves. Occasionally, an owner will carry out some or all of the gasfitting work intending to engage a gas fitter for as little work as possible.

A gas fitter recently emailed EnergySafety with some images of work that had been done by an unlicensed owner. The owner had installed a flued instantaneous water heater in one of the lower luggage compartments of a bus. The twin skin flue constructed from approved flue material was installed with a 90 degree bend immediately above the water heater. A section of horizontal flue was fitted, with an approved cowl, and terminated in the rear wheel arch.



The result is a non-compliant installation that requires rectification by a licensed gas fitter. The desire to save money through do-it-yourself gasfitting has back-fired.

Although this particular instance is interesting and somewhat amusing, unauthorised gasfitting is no joke.

The requirements are there to protect people from dangerous gas installations. This includes appropriate training and licensing.

Gas Appliances in Country Areas

Following recent reports of non-compliant gasfitting practices, EnergySafety gas inspectors visited Norseman and conducted random inspections of LP Gas installations.

Household LP Gas installations usually comprise a gas cooker, a gas water heater (instantaneous or storage) and possibly a room heater. LP Gas installations in county regions can often have dust and insects settling on or in intermittent use gas burners. This can result in blocked gas burner ports, pilots and/or venturis.

Obvious signs of this are yellow fluffy flames and/or sooty deposits around the gas burners or flue outlets. Sooty deposits can also be found on the bottom of saucepans and pots used on the cooker. This usually indicates a blocked burner or a misaligned injector. A correctly adjusted burner should have a steady blue flame without a yellow tip.

Some components on gas appliances rely on rubber seals and diaphragms for their operation, these tend to dry out and affect the operation and efficiency of the appliance. These components need to be serviced at intervals to ensure the correct and efficient operation of the gas appliance.

Of note are the rail cocks (taps) on the front of gas cookers. The manufacturer provides a smear of grease on these valves to ensure the valves are leak free and are easily operated. A smell of gas around the cooker is often caused by the grease drying out or being displaced.



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EnergySafety recommends regular servicing of gas appliances. Gas appliances in dusty environments may require lesser intervals between services. Servicing of gas appliances may only be undertaken by a licensed gas fitter. The gas fitter must attach a service label to the appliance upon completion. This label must include the date of service and the gas fitter's license number.

Automotive LP Gas fuel containers

In our previous Bulletin, issue 51, we identified the need to remind gas fitters and consumers of the care required to maintain LP Gas fuel containers. Our concerns were realised just a few days after the release of the Bulletin.

An LP Gas fuel container had perforated and was vaporising liquid into the atmosphere. The container was near full. Fire and Emergency Services were called and managed a potentially lethal situation.



Showing the underneath of the LP Gas fuel container with guard removed.



Showing inside of the container guard. Note the sand and other foreign material.



Showing the LP Gas fuel container with heavy corrosion

The container was underslung on a four wheel drive vehicle that had been used to trail and launch a private leisure boat. The container was also three years past its ten year test life. There was a build up of beach sand and other foreign material between the container and the guard. The resultant aggressive corrosion eventually perforated the container causing the liquid to be expelled into the atmosphere.

This is a very dangerous and potentially lethal situation which could have been avoided. The owner of the vehicle advised that he had never been informed that the container had a limited life even though the vehicle had been serviced regularly.

Please make the following checks part of your service procedure.

Check the:

- test date/s;
- condition of container;
- condition of mounts;
- space between the container crash guard and remove any foreign material; and
- container guard drains are adequate and free from blockage.

Let the owner/operators of the vehicle know what you find so that they are informed and can afford appropriate care for the container and have it retested or replaced prior to final expiry.

Anyone who is aware of such an incident is required by the Regulations to immediately notify EnergySafety.

Gas tightness testing – what happens if you over-pressurise?

Don't over-pressurise when leak testing gas pipe-work in a domestic/commercial gas installation, as excessively high pressures can cause problems.

When the inlet pressure to an appliance regulator becomes excessively high, a problem can be caused by the regulator becoming highly restrictive and even closing up. If this happens a leak down stream of the regulator may not be detectable upstream of the regulator.

An installation which is not gas tight poses a hazard for the consumer and may result in the responsible gas fitter receiving a Notice of Defect and an Infringement Notice. Several instances, investigated by EnergySafety of gas fitters having been issued Notices of Defect for leaving gas leaks have found that the gas fitter had exceeded the rated working pressure of the appliance regulator in carrying out leakage testing.

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To avoid this problem, test within the specified working pressure ratings of the appliance regulator. Tests on appliance regulators in the rated inlet pressure range found that if there was a leak downstream of the regulator this would be detected by the gas fitter.

The rated inlet pressure range is marked on the regulator or can be found from manufacturer's instructions or the certifying body's product directory. The maximum rated inlet pressure for most of the recently tested domestic appliance regulators was 5kPa.

As a consequence, when leak testing gas installations do not over-pressurise, but always pressure test within the rated inlet pressure of the appliance regulators while conforming to the requirements of Australian Standard AS 5601, Gas installations and the variation/exemption V/E 04/11 to the standard granted by EnergySafety.

The new edition of AS 5601 is anticipated to be released in the last quarter of 2010, when this occurs the variation (V/E 04/11) to the pressure testing method in AS 5601:2004 will be reviewed.



Kwinana Swift Power Station visit

EnergySafety staff previously visited the new Kwinana Swift Power Station at Burton Road, which is shortly to commence operation. The power station is owned by Western Energy and operated and maintained by CTEC Pty Ltd.

The power station is designed to meet Western Australia's growing electricity demand and is intended to provide a fast response and improved security of electricity supply during system emergencies or blackouts.

The open cycle air cooled peaking power station will utilise two Pratt and Whitney FT8-3 SWIFTPACS gas turbines operating in a dual fuel configuration (natural gas and distillate), with distillate only used when gas is unavailable. The natural gas consumption of each of the two Swiftpac gas turbines is 300GJ/h.

The power station will provide low-cost electricity to WA, utilising gas from the North-West shelf delivered

through the Dampier to Bunbury Natural Gas Pipeline. The power station is expected to result in lower environmental impacts than those arising from conventional power generating facilities and will link into the electrical South West Interconnected System (SWIS). Water injection is to be used to ensure the turbine burners achieve low Nitrous Oxide emissions and the plant is readily able to be converted to a combined cycle.

Valued at \$102 million, the project has already brought economic benefits to the area during its construction. The Type B gas appliance inspector was David Brown of Australian Gas Inspection Services and the gas installation/commissioning was done by CTEC Pty Ltd's Sheldon Peterson/Howard Wright respectively.



Kwinana Swift Power Station gas turbines

Recognition of the Polytechnic West Automotive Training Courses, Service and Repair of LP Gas and LNG fuel systems for a restricted class E permit

EnergySafety has recognised the Polytechnic West Automotive Training Courses, which includes service and repair of LP Gas and LNG fuel systems, as forming a suitable prerequisite for the training qualification requirements for a Class E permit restricted to servicing and repair of LP Gas or LNG mobiles in Western Australia.

The decision reached by EnergySafety was based on the apparent need for separate service (service and repair) permits; particularly for those Class E gas fitters working in the service side of the LP Gas forklift, marine and vehicle and the LNG vehicle (with factory fitted gas systems) industries, but not working in the installation side of these industries.

To offset a work experience requirement for servicing, prerequisites for trainees undertaking the training course are imposed.

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These prerequisites include:

- having a Certificate III or higher in automotive studies;
- relevant and long term automotive industry experience;
- significant experience and underpinning knowledge of Occupational Safety and Health in the automotive industry;
- being of mature age; and
- having a practical knowledge of automotive tools with a high level of hand skills.

The automotive training package installation unit of competency does still however require completion of work experience.

As part of the training course, Polytechnic West has developed an online flexible learning facility using the Moodle Library Resource which allows staged access for trainees to units/modules within the course and has practical institutional assessment conducted.

A person successfully completing the training and assessment, issued with a Completion Certificate will be deemed to have an adequate theoretical and practical knowledge, adequate skills and knowledge of the *Gas Standards Act 1972* and the Regulations required for licensing purposes. An application including a Completion Certificate may be made to the EnergySafety Licensing Centre for a Class E Permit restricted to service and repair.

Polytechnic West is proposing to conduct LP Gas courses in September 2010 on a three days per week for two weeks basis and in November on a block (five day/week) basis and for LNG in September, October and November on a block basis at their Carlisle Campus. Contact person at Polytechnic West for starting dates and details of courses is Sharon, phone 9267 7256.



15 Litre Caterpillar (C15) engine converted to LNG as used in road transport vehicles (Flat Liner)

What is an approved type of flue cowl?

Some confusion has arisen in the gas industry as to whether a flue cowl is required to be certified so as to be approved. This may not be the case as explained in this article.

There are several different terms relating to cowls as follows:

- A natural draught flue is a flue in which the draft is provided by the buoyancy effect of the hot gas combustion products in it.
- An open flue is a natural draught flue containing a draught diverter, hood or canopy.
- The flue terminal is the point at which the flue gases discharge from the flue and into a flue cowl.

A gas-fired natural draught appliance normally needs a flue cowl to be fitted to the flue terminal. Since a flue cowl is designed to prevent the entry of rain or disturbing the effect of wind while not interfering with the discharge and safe dispersal of the flue gases and the avoidance of down draughts.

The Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999 [regulations], clause 506 requires a natural draught flue to be fitted with a cowl of an approved type unless the flue terminal is permitted by the regulations to be between the ceiling and roof of a building.

The term approved in the regulations means that the flue cowl is approved by the Director of Energy Safety [or Delegate].

The flue cowl can be approved by the Director through the following:

- Competent certifying bodies for the purpose of certifying for approval series produced components such as flue cowls. Four certifying bodies are recognised in WA, these are The Australian Gas Association, SAI Global, IAPMO R&T Oceana and Global-Mark.
- Specific approvals by a Type A gas appliance inspector.

An approval certification badge on a series produced, or individual or custom built component confirms that a product has been tested to accepted standards of safety and meets the approval requirements of the Director.

The Director may also consider for approval a natural draught flue cowl that is not certified. This can be done by submitting either of the following to the Director:

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- An application for a variation/exemption. Refer to the EnergySafety website (www.energysafety.wa.gov.au) and either view or download the *Guideline to assist proponents in applying for variation/exemptions from prescribed statutory requirements in WA contained in the regulations*.
- Providing sufficient information that may on the basis of the evidence provided be accepted by the Director without issuing a variation/exemption.

Reference would need to be made in any application to the requirements of the Australian Standard AS 4566, Flue cowls – Gas appliances, since this standard is referenced from the Australian Standard AS 5601, Gas installations in clause 3.2.4: Flue cowls, which is in turn referenced by schedule 7 of the regulations. A clear assessment confirming that the proposed flue cowl will maintain an equivalent level of compliance and will function safely is required.

In conclusion, a natural draught flue is required to be fitted with a flue cowl of an approved type in Western Australia. Approved types of flue cowls are those that are certified by a recognised certifying body or granted a variation/exemption by the Director or accepted in writing by the Director on the basis of evidence that has been provided.

The cost of doing defective gasfitting has risen

Since the *Gas Standards Act 1972* (GSA) and its supporting regulations were published, the regulatory authorities have tried a number of methods in an effort to reduce the large number of non-compliances left by gas fitters identified on consumer gas installations. Verbal and written warnings, demerit points and of course prosecutions have all been tried with limited success.

In order to act as a deterrent against continuing non-compliances, EnergySafety introduced the Gas Standards (Infringement Notices) Regulations 2007. All but three of the prescribed offences within the regulations had a penalty set at \$400 for an individual. Not until January 2008 was the first infringement fine issued.

If a gas inspector checks a gas installation and discovers a non-compliance, a Notice of Defect (NOD) is issued to the gas fitter believed to be responsible. The gas fitter is then responsible for rectifying the non-compliance. An Inspectors Order is issued to the owner to have the installation rectified if the gas fitter cannot be identified.

A copy of the NOD is forwarded to EnergySafety's Gas Inspection Branch for review. The review, undertaken by a designated gas inspector determines the seriousness of the breach, the available evidence and the gas fitter's history of past performance. A recommendation to the Chief Gas Inspector may result in:

- a verbal warning;
- a written warning; or
- an infringement resulting in a fine.

Initially infringements were set at \$400 as determined by the regulations, being 20% of the maximum \$2,000 penalty a magistrate could impose at the time as prescribed under section 14 offences of the *Gas Standards Act 1972*.

Changes to the *Gas Standards Act 1972* increased the prescribed maximum penalties to \$50,000 for an individual and \$250,000 for a body corporate. There were no amended infringement penalties at this time. Had the 20% of the prescribed penalties been imposed gas fitters would have suffered extreme hardship to pay any infringement given.

A period of industry consultation followed, where modified penalties were accepted resulting in some penalties being reduced and/or capped at \$400, but the majority set at \$600 for an individual. Infringement Notices were introduced to cover the body corporate with penalties for offences ranging from \$1,250 to \$10,000. The ability to infringe for unlicensed gasfitting may now result in a penalty of \$1,000 being imposed for an individual and \$5,000 for a body corporate.

Since the infringement system was implemented approximately 1,567 NODs have been reviewed which has resulted in:

- 907 verbal warnings or written warnings;
- 319 no further action/cancellations;
- 336 infringement fines issued; and
- 5 forwarded for prosecution.

In discussing the NOD with the gas fitter at the time of the review, it is apparent some gas fitters do not have a current copy of the Australian Standards AS 5601 Gas installations, or a copy of the Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999.

The most common non-compliances identified relate to regulation 504 of the Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999 and clauses 5.13.6.5 & 5.12.1 of AS 5601:2004.

Gas Standards (Infringement Notices) Regulations 2007 can be downloaded free of charge from www.slp.wa.gov.au. Also available from the same website are the *Gas Standards Act 1972* and the Gas Standards (Gasfitting and Consumers Gas Installations) Regulations 1999.

Unlicensed gas fitting

Gasfitting in Western Australia is a licensed occupation and the majority of our readers accept this. There are however, individuals that do not endorse this view or may be ignorant of this fact and undertake gasfitting work in the belief they can do this whether for monetary gain or just to save the expense of engaging a plumber/gas fitter.

Unfortunately for these persons, not having the knowledge of trained operatives invariably leads to either the gas appliance leaking, not working or in the worst case catching fire or exploding. Both FESA and the WA Police Service advise EnergySafety of all callouts regarding gas installations, including mobile gas installations and fixed gas installations. There are also the anonymous phone calls that EnergySafety is obliged to follow up and service agents calling in non-compliant gas installations. Eventually the matter finishes with EnergySafety.

Recent changes to the infringement process with the inclusion of modified penalties can now address these issues where a person can be infringed \$1,000 for

unauthorised gasfitting. For more serious matters, an investigation and a subsequent successful prosecution can result in the maximum penalty of \$50,000.

In a recent prosecution, a complaint was lodged with the gas supplier regarding an issue with a water heater that had been installed as a replacement for an internally flued instantaneous water heater. The offender in this instance had installed an externally flued water heater internally. After an initial complaint, the offender modified the top of the water heater then attempted to flue the water heater.

The investigation revealed that the offender had previously held a gasfitting Certificate of Competency but voluntarily surrendered it. The offender produced a Notice of Completion that had been back dated 12 months and had used a gas fitter's number from a gas fitter that had resided in the country.

On sentencing, this person requested a spent conviction order however due to the offender's previous history it was not granted.

Installation of freestanding gas cookers

EnergySafety were made aware by observant gas fitters of an incorrect statement in the article regarding the installation of freestanding gas cookers in the last edition of the Gas Focus (No. 51).

EnergySafety wish to correct the statement in the picture of the gas connection. The statement in question (third text box down) incorrectly stated-

“The consumer piping connection point is to face downward and be approximately 150mm to the side of the cooking appliance in the installed position.”

It should read-

“The consumer piping connection point is to face downward and be approximately 150mm to the side of the cooking appliance **connection point when the appliance is in the installed position.”**

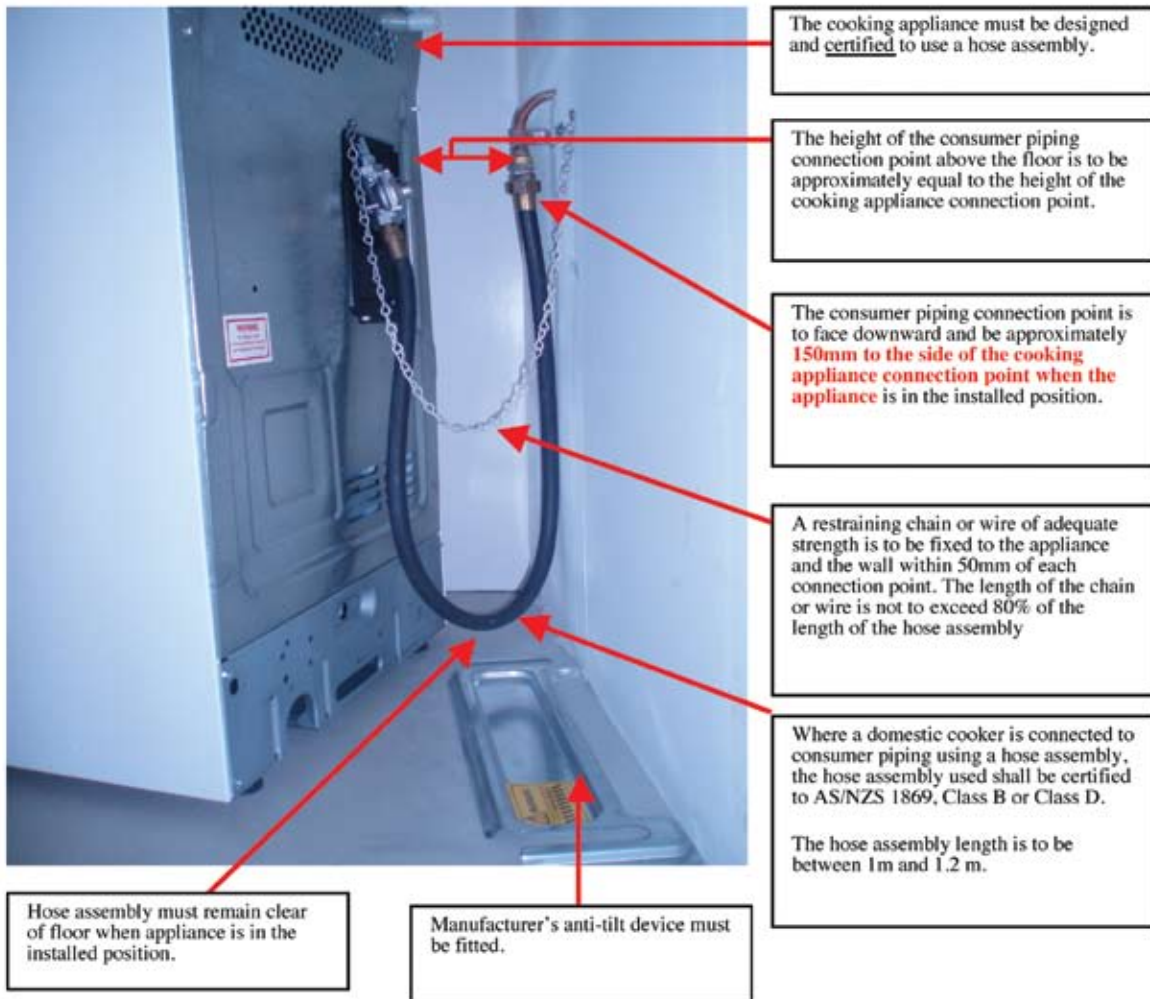
As it states in AS 5601:2004 cl. 5.12.1.8 (d)

EnergySafety would like to thank the gas fitters who brought this mistake to our attention, your feedback is very important.

Please **refer to the photo on the next page** and highlighted text for clarification.

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**Prosecutions for breaches of gas legislation
1 March 2010 to 31 May 2010**

Name (and suburb of residence at time of offence)	Licence No.	Legislation and Breach	Offence	Fine (\$)	Court Costs (\$)
Phillip Jamieson (Kingsley)	NLH	GSA 13A(2)	Carried out gasfitting work while not holding a certificate of competency, permit or authorisation allowing him to do so.	5,000	3071.00
Name Withheld (Spent Conviction)	NLH	GSA 13A(2)	Carried out gasfitting work while not holding a certificate of competency, permit or authorisation allowing him to do so.	2,000	649.70

Legend NLH No Licence Held
 GSA Gas Standards Act 1972
 GSR Gas Standards (Gasfitting & Consumer Gas Installations) Regulations 1999