be energy safe

Gas safety at festivals and events

Office of the Technical Regulator

sa.gov.au/otr

Government of South Australia

Ensuring safe gas installations at stalls, stages and in public areas of festivals and events helps avoid dangerous consequences, including fire, injury or death.

This guide has been developed to assist event organisers, catering vendors and appliance hire companies involved in holding festivals and events. The guide aims to assist with the regulatory requirements for gas installations to provide a safe environment for operators and visitors.

A gas installation at a festival/event includes:

- gas cylinders
- pipework
- heaters
- hot water units
- cooking appliances (including catering vehicles)
- any other appliances using LP Gas.

Anyone involved in holding events should be compliant with these guidelines and use them as a self-audit guide prior to the start of any event.

The Office of the Technical Regulator

The Office of the Technical Regulator (OTR) oversees the safe use of gas and electrical appliances. Gas and electrical installations and appliances must comply with the requirements of these Acts:

- the *Gas Act (SA) 1997*
- the *Electricity Act 1996*
- the *Water Industry Act 2012*
- the *Energy Products (Safety and Efficiency) Act 2012*

OTR Inspections

OTR inspectors may attend before or during events to conduct an audit. If unsafe or non-compliant situations are found, the event organiser will be notified to take appropriate action. OTR inspectors may also liaise with SafeWork SA, local councils and fire authorities on gas, electrical or water/plumbing safety matters.

1. Responsibilities

Event organisers

Event organisers have the overall responsibility for the safety management system covering the safe operation and use of gas, electrical and plumbing equipment at events.

SafeWork SA will also have specific event requirements relating to gas and electrical and should be contacted for their requirements.

It is the responsibilities of the event organiser to ensure that:

- the OTR is provided with an event details form (see below) for assessment and possible inspection by OTR inspectors
- regular inspections are carried out on the operations and facilities before and during the event
- a suitably competent and experienced person is available to oversee all gas activities, including the lighting and extinguishing of appliances
- risk assessment and documentation is completed and retained
- records and safety arrangements of gas installations are prepared and retained by their operators, including:
  - Gas safety plans for stall holders & catering vendors
  - Gas safety: event details form
  - Gas safety: event catering checklist

  (see the back cover of this book for more information)
- catering vendors meet their obligations for the safe use of LP gas
- storage and handling of LP gas is correctly managed (including provision of safety standards, safety procedures and emergency procedures).

The event organiser must liaise with fire services, regulatory authorities, gas suppliers, catering vendors and appliance equipment hirers. Event organisers should be aware that where formal advice is required, it may take some time for the provision of this advice.

Additionally, SafeWork SA may require details of dangerous goods and substances.

Catering vendor

The catering vendor has the responsibility to ensure they have appropriately certified gas appliances and equipment to perform the task.

The catering vendor must also:

- be fully familiar with the operation and function of any appliances used, including emergency procedures
- ensure any staff operating an appliance are trained in its safe operation and what to do in an emergency, including fire extinguisher training
- report and arrange for any repairs of damaged equipment - if it poses a risk, isolate the equipment and place “out of service” signage on it
- be familiar with the hazards of using LP gas and ensure the location of cylinders and appliances comply with the appliance manufacturer requirements, this guide and the risk assessment
- engage a licensed gas fitter to conduct gas installations and provide electronic gas Certificates of Compliance (eCoC) for appliances other than connecting a certified BBQ and 9 kg cylinder
- only use gas appliances the way that they are designed/certified.

Appliance hire company

The appliance hirer who owns and hires out appliances and equipment must ensure that the equipment is suitable for the intended task.

The appliance hire company must:

- ensure that any LP gas bottles that they provide are in good condition and certification date stamped within the last 10 years
- provide maintenance and inspection details relating to individual appliances and equipment upon request
- provide the catering vendor with instructions for the safe deployment and use of all hire equipment and LP gas cylinders (including location, setup, normal operation, safety warnings, emergency and shut down instructions).

Additionally, appliances, equipment and LP gas cylinders for hire must:

- have evidence of appropriate certification available
- be in good working order and condition when supplied
- be maintained by an appropriately licensed gas fitter
- be accompanied with operating procedures (including emergency procedures).

2. Gas appliance safety requirements

All gas appliances used at public events must be certified and in good condition. Additionally, they must have the operating instructions fastened to the appliance, or alternately, a manual or procedure available. Appliances must not be modified and should be used in a way to prevent the risk of fire and hazards to people.

Gas appliances certification

Appliances must display a certification badge or certification number of compliance/data plate if fitted.

Appliances not displaying a certification badge must not be used.

Appliances must **not** be installed or used indoors if they are certified for outdoor use only.

Barbecues may be used under a covered area that complies with the definition of an outdoor area. Further information can be found in section 3 of this book.

Figure 1: Examples of common appliance certification hallmark badges.

Appliance conversion

Type A appliances converted from natural gas to LP gas must show proof of certification in the form of a gas eCoC. Conversion work must be carried out by a licensed gas contractor and the marking plate details altered to reflect conversion details. An appliance must only be converted if it is certified for conversion.

Gas leaks

Appliances and their fittings should be inspected and tested for leaks prior to their use. Testing can be performed by using ammonia free soapy water to detect bubbles, indicating leaks at all joints.

A flame should never be used to test for leaks.

O-Rings and soft seals on gas cylinder connections must be free of damage or defects and must be compatible and suitable for the gas type, pressure and operating environment. Refer to section 5 of this book for further information.

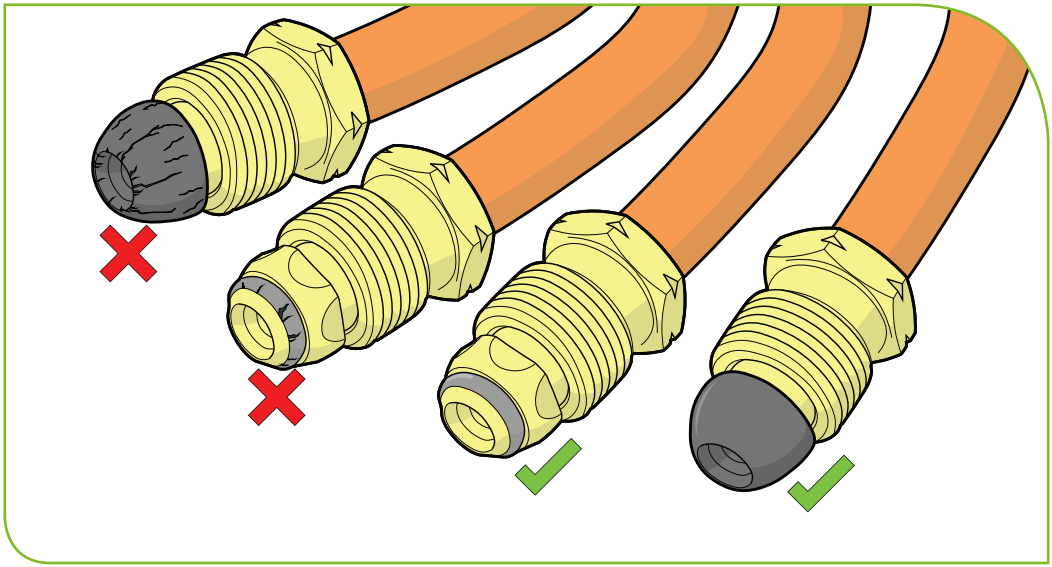


Figure 2: O-Rings and soft seals on gas cylinder connections must be free of damage or defects.

Safety devices

Safety devices fitted to gas appliances should not be interfered with, overridden or removed. These safety devices may include flame safeguard systems, thermostats, over temperature cut-offs and excess flow valves.

Maintenance and repairs

Gas appliances are to be maintained in good working order. Service and repair records must be kept and made available if requested.

Hot water units

All hot water units conforming to AS4552 must be installed by a licensed gasfitter. Portable gas water heaters conforming with AS2658 may be set up outdoors by operators in accordance with the manufacturer's instructions. Gas pipework or hoses should be protected and not cause a tripping hazard.

Appliance location

Gas appliances should be located so that they:

- are correctly ventilated and flued to ensure proper operation
- receive adequate air supply to allow the complete combustion of LP gas
- are protected against the effects of corrosion and physical damage
- permit functional adjustment, safe ignition, access for operation and maintenance
- don't restrict or obstruct the movement of people
- don't create a hazard to people or structures.

Cooking appliances

Ring burners or portable wok burners must be installed in accordance with the manufacturer's instructions. They must be secured to prevent movement and be placed on a non-combustible surface unless approved otherwise by the appliance manufacturer. They are designed for outdoor use only and must be operated away from any combustible materials or surfaces.

The ring burner or wok burner must be:

- used on a sturdy, stable, level and flat surface
- capable of supporting the weight of the gas appliance and cookware when filled
- protected from direct drafts and in a well-ventilated location.

Ring burners and portable wok burners must not be used at events unless the burner is certified and features an integrated pan support.

Clearance from combustible material and surfaces

Gas appliances must be installed and used so that they avoid damage to nearby combustible surfaces. For marquees with plastic walls, fibre cement sheets with air gap spacings of no less than 25 mm can be used in addition to the side measurements listed below to provide enhanced safety.

The following clearances to combustible surfaces will ensure that ignition of combustibles does not occur. Nearby surfaces should still be periodically monitored to ensure that no hazards occur.

Clearances of appliances

Gas appliance	Minimum clearance
A Target top cooking table, griddle, barbecue, char griller/broiler or open top flare griller/broiler	1350 mm
B Solid grill plate, deep fryer (top of pan)	600 mm
C Open flame gas appliance (i.e. hotplate burner)	1050 mm
D Kebab cooker	200 mm
E Rear and sides of all appliances	250 mm

Where multiple appliances are serviced by a single extraction system, the distance from the cooking surface of each gas appliance to the grease filter must be such that the minimum clearance in this table is applied to each respective appliance.

For other commercial catering equipment, refer to the manufacturer's instructions.

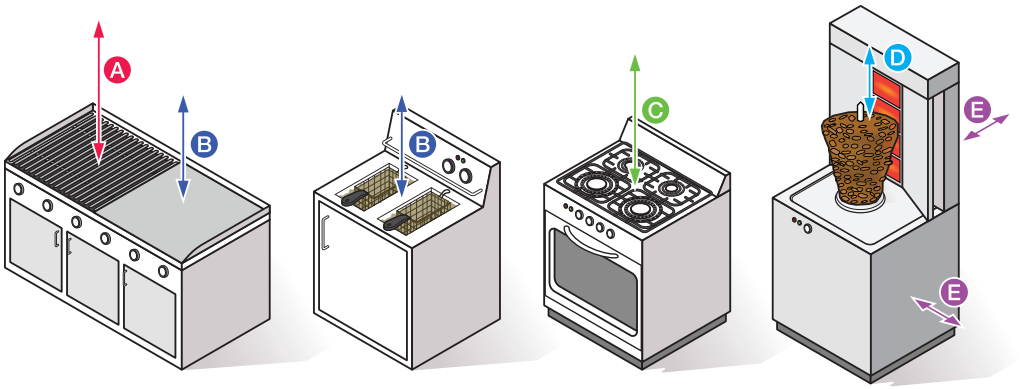


Figure 3: Minimum clearance distances for different gas appliances and combustible surfaces.

3. Structures

Structures forming part of a public venue are subject to rules and regulations. There are many types of public venue structures including (but not limited to):

- convention and exhibition centres
- pavilions and halls
- recreation centres
- fairs and fêtes
- stalls, tents or marquees
- mobile catering vehicles.

Permanent structures

A permanent structure is a building such as a hall, pavilion or assembly building used for an event. Permanent structures include:

- churches
- schools
- sporting club halls
- carport type structures
- sheds
- gazebos and rotundas.

Temporary structures

Temporary structures include:

- marquees and tents
- booths
- awnings.

Temporary structures may also include those which have been sufficiently weatherproofed to allow the installation of an appliance certified for indoors without affecting its safety, combustion or integrity.

Outdoor areas

A structure conforms to an outdoor classification if 50% of the total area is open to atmosphere. Outdoor areas will have sufficient ventilation to ensure correct combustion and the safe venting of products of combustion.

Outdoor areas allow the use of outdoor appliances under a covered area if:

- two sides are open as in figure 4; or
- one side open (equal to 25% of the total wall area) and at least 30% of the remaining total wall area open and unrestricted as in figure 5.

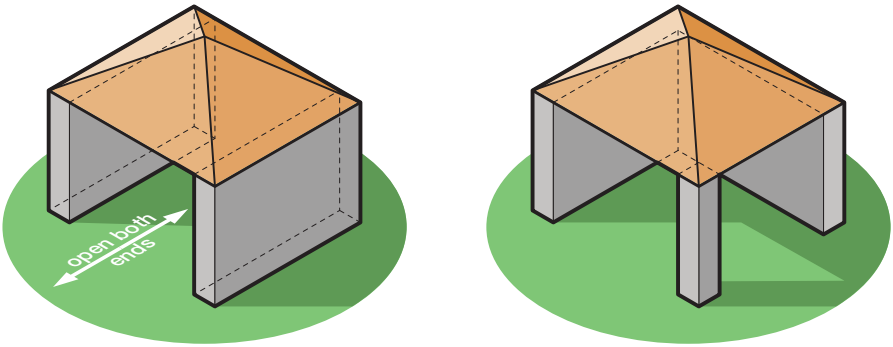


Figure 4: Examples of structures that have at least two sides open, each of which is at least 25% of the total wall area.

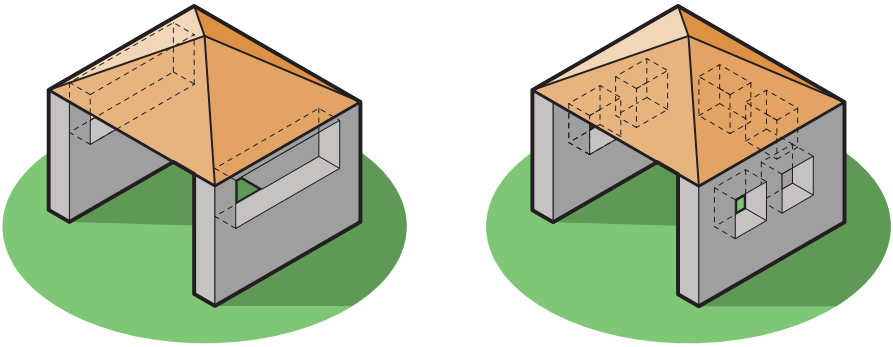


Figure 5: Examples of structures that have one open side, and 30% or more of the remaining wall area open and unobstructed.

Quasi-outdoor Areas

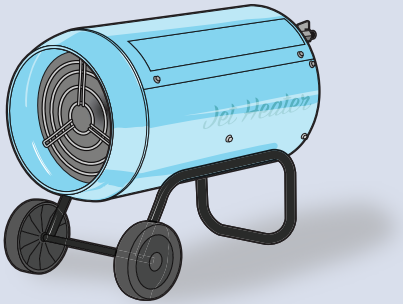
A quasi-outdoor area is an area that does **not** conform to the definition of outdoor areas. As an example, a verandah which has had 2 sides enclosed by cafe blinds and 1 side closed by a wall would be classed as quasi-outdoor.

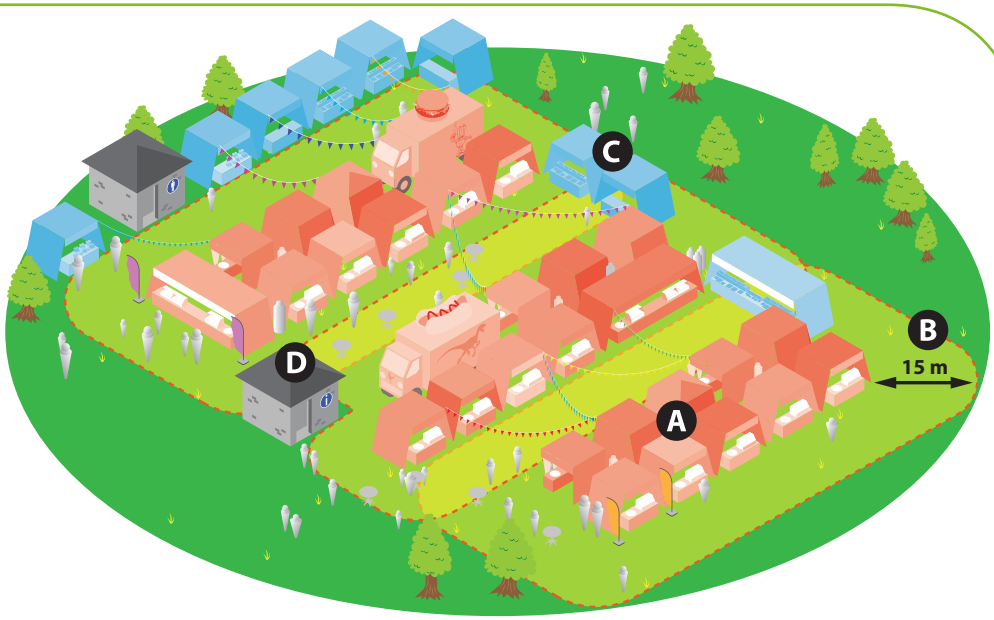
Gas appliances intended for outdoor operation must not be installed/ operated in a quasi-outdoor area. Appliances certified for indoor use may be installed and operated within a quasi-outdoor area if:

- the appliance is sufficiently protected from drafts and rain to ensure safe operation
- the installation meets the manufacturer's requirements
- the installation meets the AS/NZS5601 standard.

Portable gas heaters

Portable gas heaters certified only for outdoor use must **not** be installed in any indoor location **including** any quasi-outdoor areas.





Groups of Temporary Structures

Where temporary structures or mobile structures are grouped together – for example, a group of marquees at a market – additional rules apply:

- There may be a maximum of 10 structures using LP gas in any group (A).
- Groups of structures using gas must be separated by at least 15 metres from other groups (B). The area between may be occupied, but by temporary structures in which no flammable gas or liquids are kept (C).
- No permanent structures should be located within the 15 metre gas-free zone (D).

Mobile catering vehicles (including trailers, converted caravans, self-propelled vehicles and large semi-trailers that provide prepared food) are included in the total for any group of structures.

4. Mobile catering vehicles and trailers

Gas installations in mobile catering vehicles or trailers must be installed by a licensed gas fitter. The gas fitter is required to fix a metal compliance plate to the vehicle and provide a gas eCoC at the completion of installation.

A copy of this eCoC must be kept within the van/trailer and made available when audits are conducted.

Appliances

Any appliances used inside mobile catering vehicles or enclosed trailers must:

- be certified for use indoors
- be installed as per the manufacturer's instructions and the applicable requirements of AS/NZS 5601 part 1 or 2 at the time of installation
- not be adversely affected by the operation of exhaust fans or air conditioning systems
- be protected by flame safeguards on all burners
- be adequately secured to prevent movement during travel
- be able to be isolated via a gas isolation valve on the appliance connection
- contain an interlock to isolate the gas supply for stowable appliances that remain connected to the gas supply when stowed.

Additionally, cooking surfaces must comply with the minimum distances - refer to section 2 of this book for further information. Operators are to be familiar with appliance operating instructions, including emergency procedures.

Pipework

For caravans, trailers or catering vehicles, the main run of the piping system must be located outside. This is a requirement, regardless of the number of appliances connected to the pipework.

The pipework must be firmly fastened in a protected location so that:

- all joints and unions are accessible
- shut-off valves and hoses are readily accessible
- branch pipes separately enter the interior of the vehicle or trailer via a grommet next to each appliance.

If piping runs along the chassis, it must be fastened to the side and not beneath it.

Any void between the working space and a false bottom which contains consumer piping must be sealed from the working space. These spaces must be provided with a minimum of 500 mm^2 ventilation near any unions or joints so that leaking gas may escape to atmosphere.

Pipework for vans or trailers must be fully annealed Type A or B copper tube with flared, or capillary silver braised fittings. Press fit copper fittings or composite pipe systems are not permitted. Alternatively, single appliances may be connected using a hose assembly to AS/NZS 1869 Class A, B, C or D. Further information can be found in section 2 of this book.

Adequate ventilation

Any appliances used in commercial mobile catering vehicles or trailers must be supplied with adequate ventilation provided as per AS/NZS 5601.1.

Where ventilation may include openings such as serveries, appliances must not used while these are closed.

Figure 6: An example of a warning label affixed to an appliance which requires additional ventilation to operate safely.

5. LP gas cylinders

All gas storage and gas installations must comply with gas safety regulations and relevant standards.

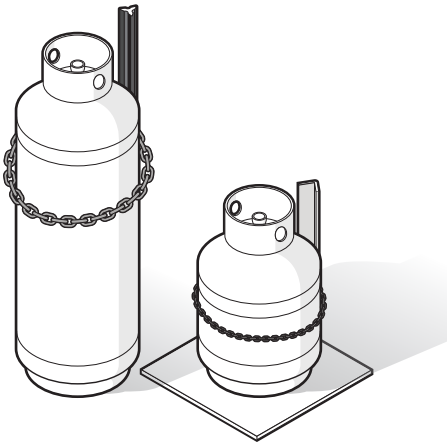
LP gas cylinders must be in good condition and free from rust or dents, etc. It is a requirement that LP gas cylinders are inspected every ten years and stamped with the test date. LP gas cylinders, where the date has expired should not be used. LP gas cylinders must conform to AS 2030.1.

Gas escape

Cylinders and their fittings must be inspected for leaks prior their use and every time a cylinder is exchanged. Inspection can be performed by using ammonia free soapy water to detect leaks at all joints.

Figure 7: Soapy water tests being performed on hose connections. Growing bubbles indicate the presence of a gas leak.

Stabilising cylinders



All cylinders must be stable and secured to prevent them from being knocked or tipped over.

Cylinders connected to an appliance should be stable and secured with the relief valve directed away from the appliance, combustible materials or any potential ignition source.

Cylinders may be stabilised by:

- securing the cylinder to a permanent structure
- placing smaller cylinders in a secure and stable, non-combustible, ventilated container such as a wire basket (not plastic)
- fixing small cylinders on a base plate and post secured to prevent tilting
- securing larger cylinders with chains to stakes or star pickets.

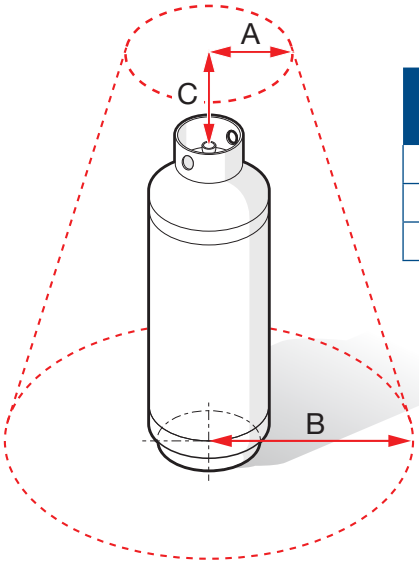
Storage of LP gas cylinders

Different rules for storage apply depending on the quantity and size of cylinders being used. Contact SafeWork SA for more information on cylinder storage and licensing requirements, particularly if the total aggregate amount of gas on site exceeds 250 kg (500 L)

Minor LP gas storage

Gas storage within enclosures is allowable provided that:

- the total quantity does not exceed 60 kg
- the maximum cylinder size does not exceed 15 kg.



Radius	Exchange cylinder	In-situ cylinder
A	500 mm	1500 mm
B	1500 mm	3500 mm
C	500 mm	500 mm

Figure 8: Minimum clearances to ignition sources for exchange cylinders

Distance from ignition sources

LP Gas cylinders serving gas installations must be located as per Figure 8 to provide clearances to ignition sources. Common ignition sources include:

- Electrical equipment
- Power cord plugs or power boards
- Light switches
- Refrigerators
- Generators
- Objects that may arc, spark or produce excessive heat - this may include gas appliances.

Portable appliances certified with provision for close coupled 9 kg cylinders are acceptable, for example BBQs.

Access and exits

You should ensure clear, unobstructed entry to and exit from work areas. Contact SafeWork SA for further details.

Distance from readily ignitable materials

Cylinders should be located at least 1 metre from readily ignitable materials.

Components

LP gas hoses

LP gas hoses need to be maintained in good condition and must:

- be connected in a way which prevents entanglement and tripping hazards
- be certified to AS/NZS 1869 Class A, B, C or D for appliance connections and suitable for the temperature, pressure and flow application
- be of a continuous length, as short as possible, and not exceeding three metres
- not be kinked, cracked, brittle, bulged or strained.

Hose assemblies must not pass through the panel or casing of an appliance unless the appliance is specifically manufactured for such connection to a hose assembly.

LP gas hoses connecting LP gas cylinders to regulators must conform to AS/NZS 1869 Class C, D or F and have an excess flow valve immediately upstream of the hose assembly.

Regulators

In commercial operations, all gas appliances must be supplied through an integral 2-stage regulator. This must be independently mounted and fitted with a flex hose connecting the regulator to the cylinder.

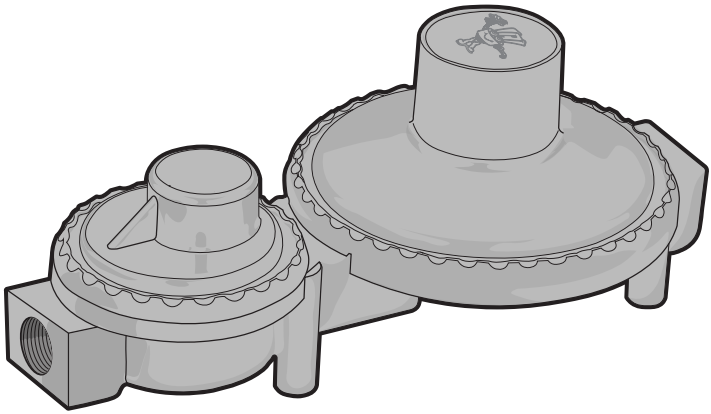


Figure 9: An integral 2-stage regulator as required in commerical operations

Public event forms

Event organisers, stall holders and catering vendors are all responsible for the safe use of LP gas for the duration of events that they attend.

Before an event, these parties are required to complete three forms:

- *Gas safety plans for stall holders & catering vendors* (must be submitted to the event organiser at least 4 weeks before the start of the event)
- *Gas safety: event details form* (must be submitted to the OTR at least 4 weeks before the start of the event)
- *Gas safety: event catering checklist*.

To download the forms or to find further information, visit sa.gov.au/otr/eventsafety

Safework SA

Safework SA is the authority on LP gas storage and licensing. For further information, contact Safework SA:

Online: safework.sa.gov.au

Phone: 1300 365 255

Contact the Office of the Technical Regulator

Online: sa.gov.au/otr

Email: otrmail@sa.gov.au

Phone: (08) 8429 3466

Government of South Australia