Office of the Technical Regulator - 2024 Gas Installation and Appliance Safety Roadshow

Government of South Australia
Department for Energy and Mining

Topics

- Meet the team
- Gas trade website
- Excess flow valves
- Multilayer piping limitations
- Cooker clearances
- Location of flue terminals
- Audit feedback

Meet the gas safety team

- Ron Meakins Manager Gas Installation and Appliance Safety
- Andrew McCann Senior Gas Installation and Appliance Inspector
- Joe Martino Senior Inspector, Complex Gas Installations and Appliances
- Steve Millane Gas Installation and Appliance Inspector
- Brendan Purton Gas Installation and Appliance Inspector
- Chris Scott Gas Installation and Appliance Inspector

Gas Trades

Regulatory services

Office of the Technical Regulator

- Electrical trades
- Gas trades
- Plumbing trades
- Infrastructure technical regulation
- Reports and newsletters

The Gas trades section of the Office of the Technical Regulator (OTR) monitors and regulates the safety and technical standards of South Australia's gas installation industry.

Put simply, it governs gas fitters in South Australia.

This page is for gas fitters who undertake gas installations, as well as businesses and individuals that work in the gas trade industry. Here you can find information on compliance, reporting, approvals, audits, standards as well as contacting OTR's Gas trades section.

If you're looking for technical regulation for network operator infrastructure, also visit our OTR Infrastructure Technical Regulation page.

Expand each of the topic headings below for further information.

- Electronic Certificate of Compliance (eCoC) +
- Gas technical bulletins +
- Reporting gas leaks and incidents +
- Above 3kPA application +
- Gas product approvals +

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

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Gas Trades

Gas technical bulletins

Technical bulletins are produced by the OTR Gas trades section to help gas fitters understand their requirements under the law. These cover gas related installations, appliances, situations and hazards.

- Gas Bulletin 61 - Multilayer piping - reversion fittings (PDF, 299.7 KB)
  Issued November 2023
- Gas Bulletin 60 - Multilayer piping - restrictions and limitations (PDF, 999.0 KB)
  Issued November 2023
- Gas Bulletin 59 - Rangehood and kitchen overhead clearances from domestic cooking appliances
  (PDF, 316.3 KB)
- Gas Bulletin 58 - Commissioning of Type B Gas Appliances (PDF, 171.1 KB)
  Issued October 2023
- Gas Bulletin 57 - Provision of fire emergency isolation for multilayer pipe in residential Class 1a buildings (PDF, 505.3 KB)
  Issued March 2023
- Gas Bulletin 56 - Caravans & Quick Connect Devices (PDF, 235.6 KB)
  Revised November 2023

Gas Trades

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Heat shields

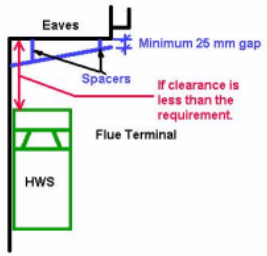
Gas Bulletin #06
Issued February 2023

Are you unable to comply with the required clearance distances below eaves for hot water flue terminals?

There are occasions where it is not possible to locate an external gas hot water heater to comply with the requirements of AS/NZS 5601.1:2022 figure 6.9.3 Ref (a), below projecting combustible structures such as eaves.

Where there is no alternative location and the appliance cannot be installed lower to comply, contact the OTR as we may be able to give an exemption to allow a lesser distance between the overhanging structure and the terminal, provided a heat shield is to be installed that would meet the following specification:

- The heat shield shall be made of non-combustible material (sheet metal or cement fibre sheeting).
- The heat shield shall be fabricated to be twice the width and twice the depth of the appliance or provide heat protection to the full extent of the overhanging structure whichever is the greater.
- The shield shall not be fitted directly to the surface to be protected but rather fitted on spacing devices, at least 25mm below the overhanging structure, to provide an insulating air gap above the shield
- The heat shield shall be constructed and installed so as not to allow the accumulation of water above the shield.
- There shall be a notation on the Certificate of Compliance that there was no alternative but to install the appliance in that position and a reference to the installation of the heat shield.



Contact the Office of the Technical Regulator for more information

Online otr.sa.gov.au
Email otr@sa.gov.au
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Multilayer piping - reversion fittings

Gas Bulletin #61
Issued November 2023

Clause 5.2.12 Reversion fittings for proprietary multilayer piping
Reversion fittings must be installed in Class 1 buildings where a multilayer piping system installation has a main run exceeding 10 metres in length and has more than one appliance connected.

Reversion to standard thread complying with AS ISO 7.1, BSPT, or a standard annealed copper tube, must be provided on the main run prior to the first and last branch take off points.

Reversion fittings are only required to be installed where they will be accessible, including ceiling cavities.

Due to compatibility issues, different brands of multilayered piping are not dimensionally compatible or approved to be connected directly to other brands (this includes the manufacturers proprietary fittings and tools).

The intent for reversion to standard thread, or annealed copper in a multilayer piping installation, is to allow for future extension or connection to a non-compatible multilayer piping brand or to standard piping materials.

Acceptable reversions

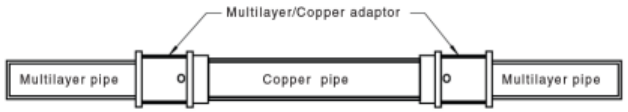

Figure 1: Reversion to standard annealed copper tube

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Rangehood and kitchen overhead clearances from domestic cooking appliances

Gas Bulletin #59
Issued October 2023

The new AS/NZS5601.1 – 2022 gas installation standard (the standard), adopted and implemented on the 31st of March 2023, new clearance requirements now exist for the installation of domestic cooking appliances under rangehoods and overhead combustible surfaces.

For new domestic kitchens constructed after the adoption of the standard
For all domestic cooking appliance installations in new builds and kitchen replacements / renovations, the clearance from the top of the cooking vessel supports (trivets) to the underside of the rangehood require to have a minimum clearance of 650mm. If a greater clearance is required by either the cooking appliance manufacturer or the rangehood manufacturer, the greater clearance must be followed.

For overhead cupboards and any other downward facing combustible surfaces less than 650mm above the cooker support trivets will be required to be protected the full width and depth of the hob. This clearance to any overhead surface must not be less than 450mm. ***Appendix C in the standard provides specifications and methods of thermal protection.***

Reference:
Clause 6.10.1.1 Clearance around a gas cooking appliance, other than for indoor barbecues in residential premises (a) Requirement 1 — Overhead clearances — (Measurement A): (i) (ii)

For existing domestic kitchens constructed prior to the adoption of this standard
For existing kitchens compliant with the previous standard, alterations that involve replacing a cooktop are only permitted to retain a 600 mm clearance measured from the highest burner point to the underside of the rangehood and any overhead downward facing combustible surfaces if the new cooktop manufacturer allows it. If the new cooktop manufacturer requires a greater clearance, the manufacturer's specifications must be applied.

Reference:
Clause 6.10.1.1 clearance around a gas cooking appliance in residential buildings. (a) Requirement 1 — Overhead clearances — (Measurement A): (iii)

Continued on next page

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Gas Trades QR Codes

Scan to access information

Emergency isolation of multilayer pipe

Clause 5.2.11 Provision of fire emergency isolation for multilayer pipe.

Multilayer pipe installations are now required to be fitted with a system that shuts off the gas supply when there is a fire emergency.

Multilayer pipe doesn’t have the durability and mechanical strength of metallic piping when subjected to fire.

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Emergency isolation of multilayer pipe

For residential Class 1a buildings

- The installation is to be fitted with a device that will shut off gas supply if the gas tightness is adversely affected by fire.
- Protection must be provided with either an excess flow valve (EFV) or an under pressure shut off valve (UPSO)
- These devices need to be installed up stream of multilayer pipe.
- Be accessible *and*
- Install as close as possible to the gas supply point.

Multilayer piping – Excess Flow Valves (EFV)

Gases: Natural gas, LPG and butane.

T**emperature**: Ambient range between -20°C to 60°C.

Positioning: Suitable for multi-positional mounting (indicated on label).

Capacity: Various cubic meter rates indicated on label, refer to manufactures instruction when sizing EFV.

Limitations: Can only be used for multilayer piping in class 1a residential buildings.

Pressure limitations: Not suitable for pressures below 1.4kPa.

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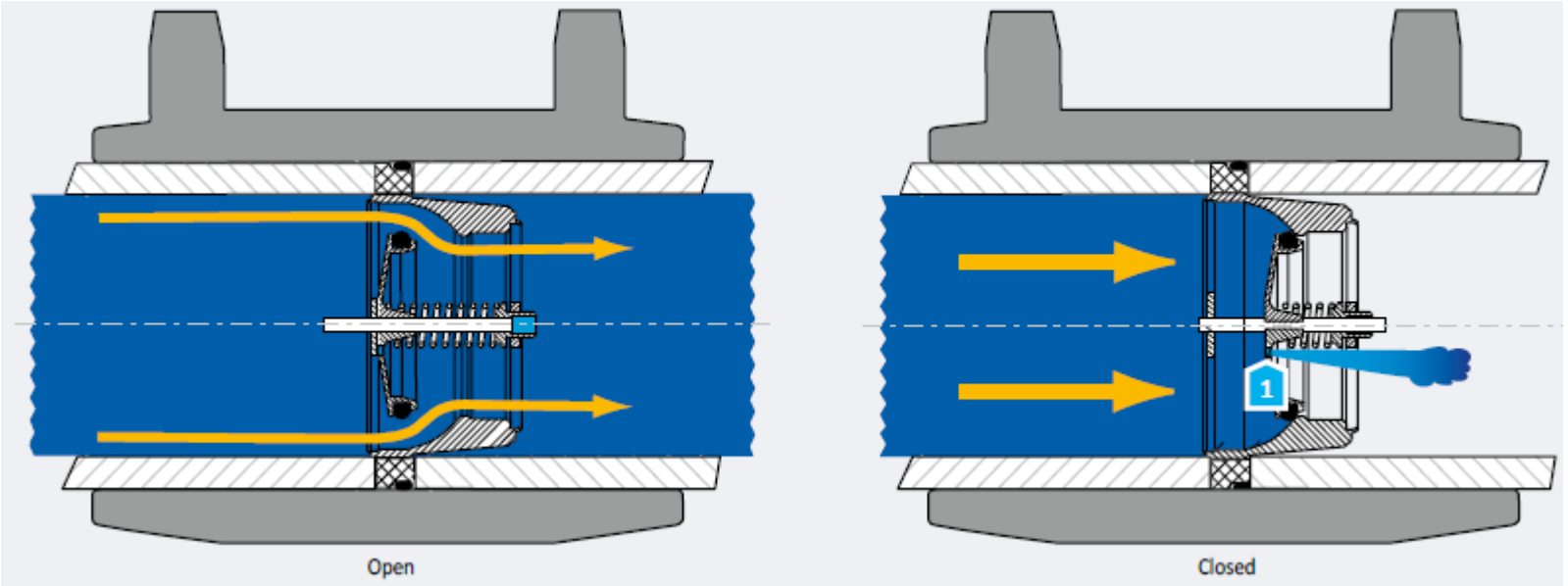
Multilayer piping – Excess Flow Valves (EFV)

Figure 1
Sectional view of a SENTRY GS in open position

1. Housing, Inlet and Outlet Guide (brass)
2. Closing Disc (standard version aluminium)
3. Adjusting Screw (brass)
4. Pressure Spring (stainless steel)
5. O-Ring (NBR)
6. Guide Pin (stainless steel)

Multilayer piping – Excess Flow Valves (EFV)

- Nominal flow ranges of EFVs remain in a stable and open position
- Gas flows through a ring shape gap between the closing disk and seat
- When the closing gas rate is reached, the closing disk overcomes the spring pressure and closes against the seat resulting in a gas tight seal.
- To reopen: downstream and upstream pressures must be equalised.



EFV and UPSO examples

Maxitrol EFV TECO EFV UPSO

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Calculation for sizing EFVs

Refer to Gas Technical Bulletin # 57 Provision of fire emergency isolation for multilayer pipe in residential Class 1a buildings for details.

- It is important to note that some of these valves are sized according to the amount of cubic meters they are expected to pass before shutting off.
- AS/NZS5601.1 2022 Appendix F Table F.1.5 Gas Properties states that the heating value (HV) of natural gas is 38Mj/m^3 and for LPG it is 96Mj/m^3.
- Therefore if you had an installation with a continuous flow hot water unit rated at 198Mj/h, a cook top rated at 40Mj/h and a gas central heating system rated at 120Mj/h your total gas flow rate for that installation would be 358 Mj/h.

Conversion example

Total installation load: 358Mj/h

Heating value of natural gas: 38Mj/h

358 ÷ 38 = 9.42 m3

The example above would require a 10 m3 EFV

If using LPG, you would need to change the heating value to

96 Mj/h

For commercial / industrial buildings / restaurants / high rise apartments

- The installation is to be fitted with a system that will shut off the gas supply when the fire safety system operates.
- Protection must be provided with a single, class 1, safety shut off valve that incorporates a pressure proving system before restoration of the gas supply.
- Be located upstream of multilayer pipe and as close as possible to the gas supply point and be readily accessible.
- Integrated into the buildings fire management system.

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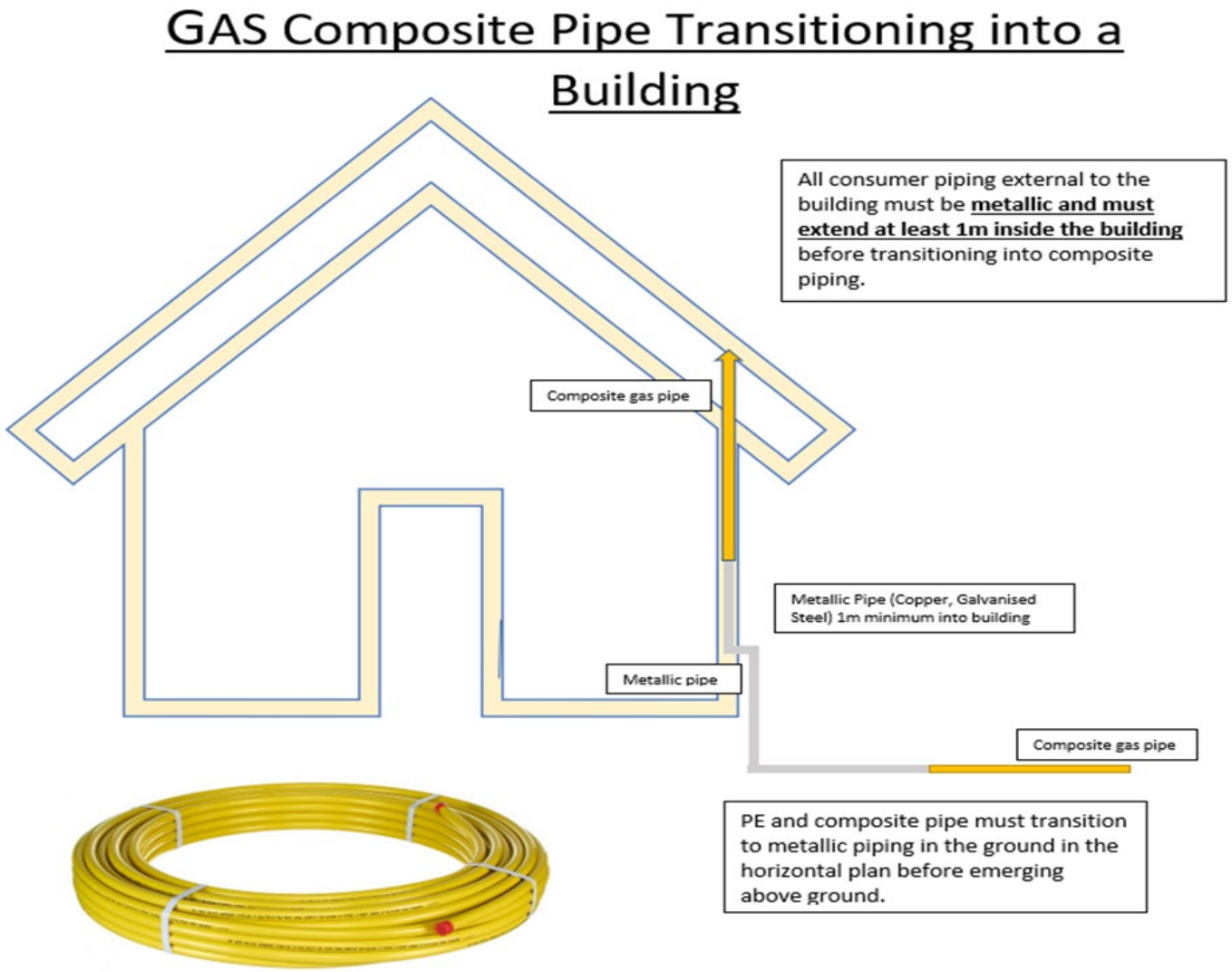
Multilayer piping - limitations

Clause 5.3.16 - now prohibits multilayer piping above ground external to a building.

Multilayer piping - limitations



Multilayer piping - limitations

Clause 6.6.1 – Restrictions on appliance connection

Multilayer piping must terminate at least 1m from the nearest part of the appliance.

Simply put, there is now an exclusion zone of 1 metre around gas appliances from multilayer gas pipework.

For appliance connection points, we recommend running a galvanised steel or copper dropper from the ceiling cavity down to the appliance connection point.

Final connections to appliances must be made with copper tube, galvanized steel pipe or certified gas hose assemblies

Multilayer piping – limitations

1m exclusion zone around gas appliances from multilayer piping

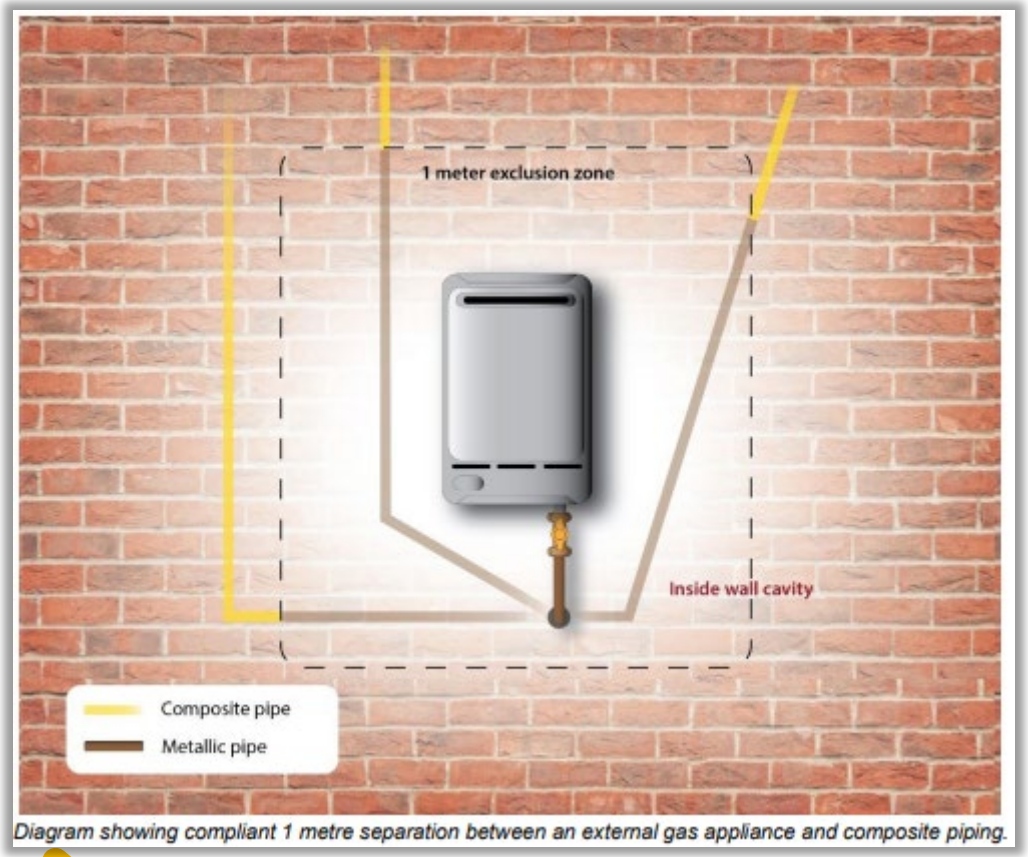
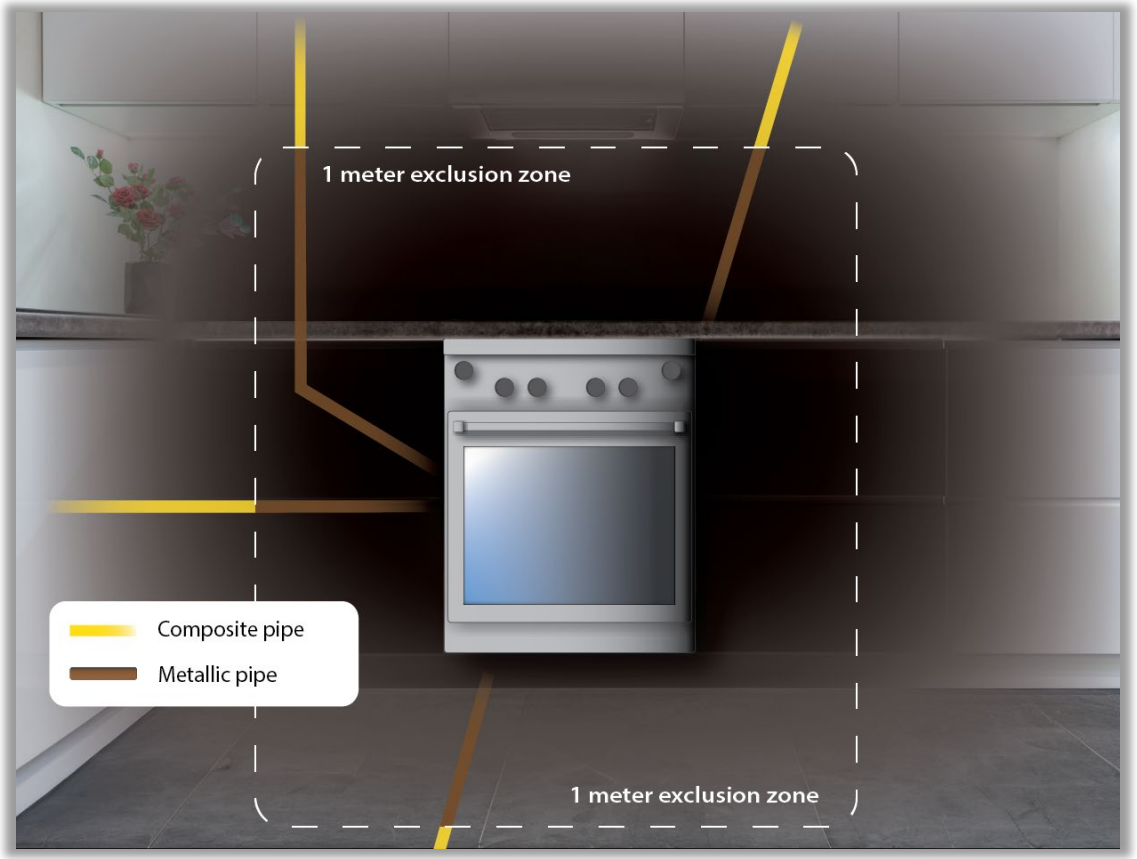
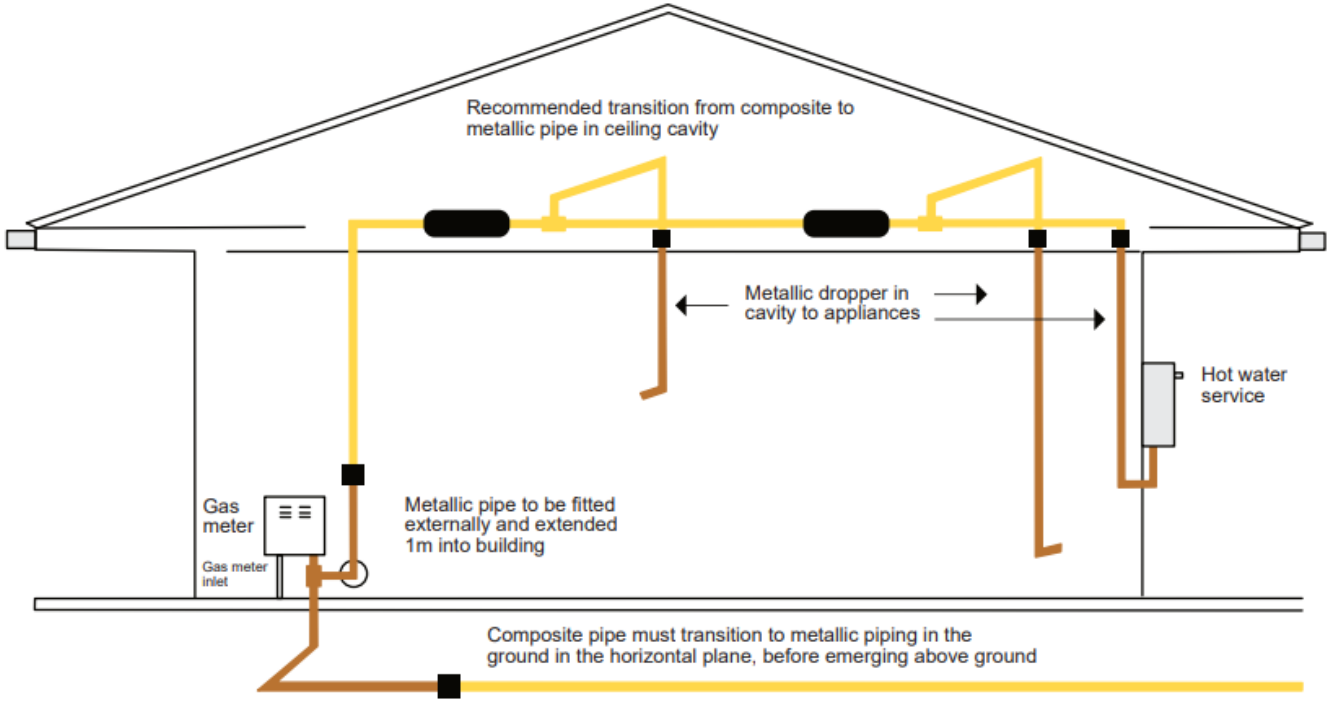


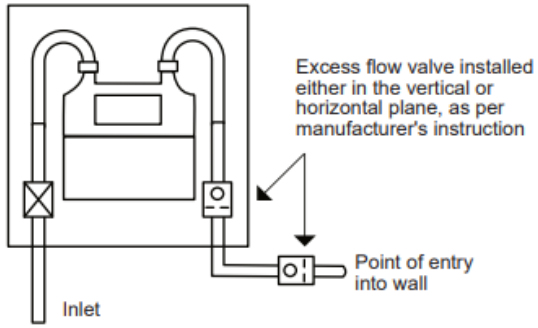
Diagram showing compliant 1 metre separation between an external gas appliance and composite piping.



Multilayer piping – limitations



Gas meter



Key

- Point of entry into wall
- Reversion fitting
- Transition fitting
- Excess flow valve
- Composite piping
- Metallic piping

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

Multilayer piping – limitations

Compliant multilayer 1st fix installations

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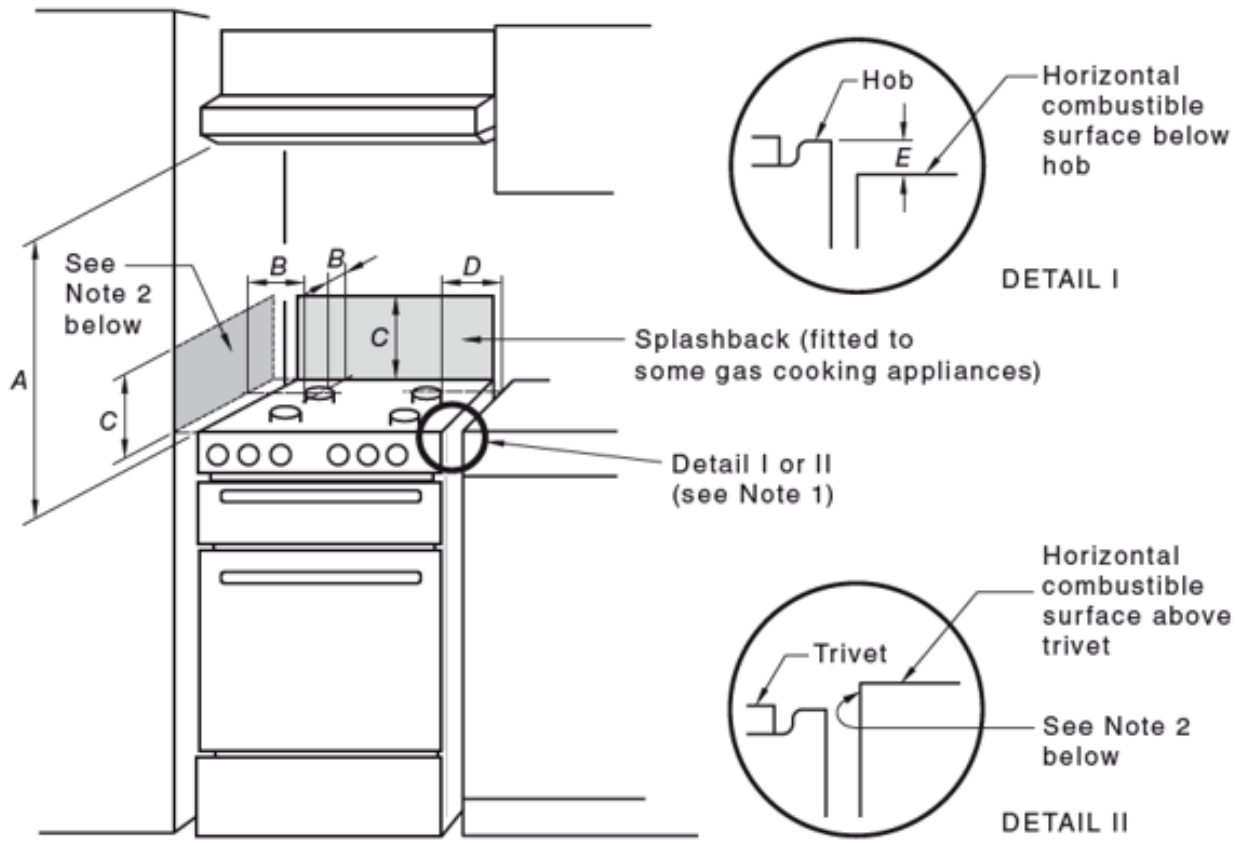
Multilayer piping – limitations

Non-compliant multilayer 1st fix installations




Increased overhead clearances for cookers



NOTE 1 Details I and II relate to Requirement 3 of Clause 6.10.1.1[Item (c)].

NOTE 2 In this case, any vertical *combustible surface* needs to be protected in accordance with Requirement 2 of Clause 6.10.1.1 [Item (b)].

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Increased overhead clearances for cookers

Clause 6.10.1.1 clearance around a gas cooking appliance in residential buildings

Clearances between the cooking appliance and combustible material must be in accordance with the manufacturer's requirements.

Where a clearance between a cooktop and a rangehood is not specified by the manufacturers the new default clearance is now 650mm (750mm for exhaust fans)

Measurement is taken from the top of the highest trivet on the cooker

Downward facing combustible surfaces less than 650mm will need to be protected for the full width of the hob

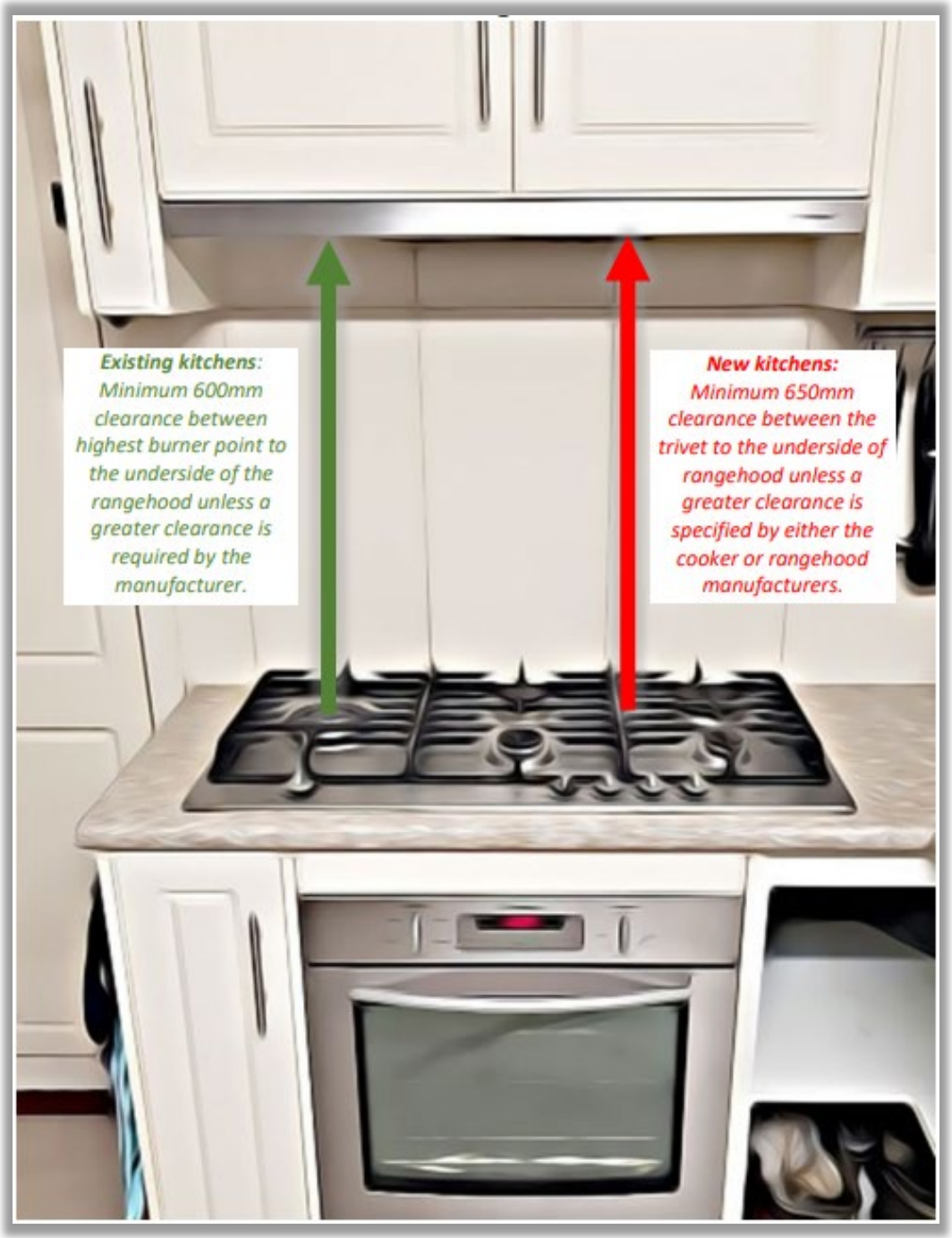
Overhead clearances for existing cookers

For existing installations, from the date this standard has been adopted, where an appliance is replaced, the following apply:

Clearances between the cooking appliance and combustible material must be in accordance with the manufacturer's installation instructions.

Where a clearance between a cooktop and a rangehood is not specified by the manufacturer the minimum required clearance is 600mm (750mm for exhaust fans)

Overhead clearances for cookers



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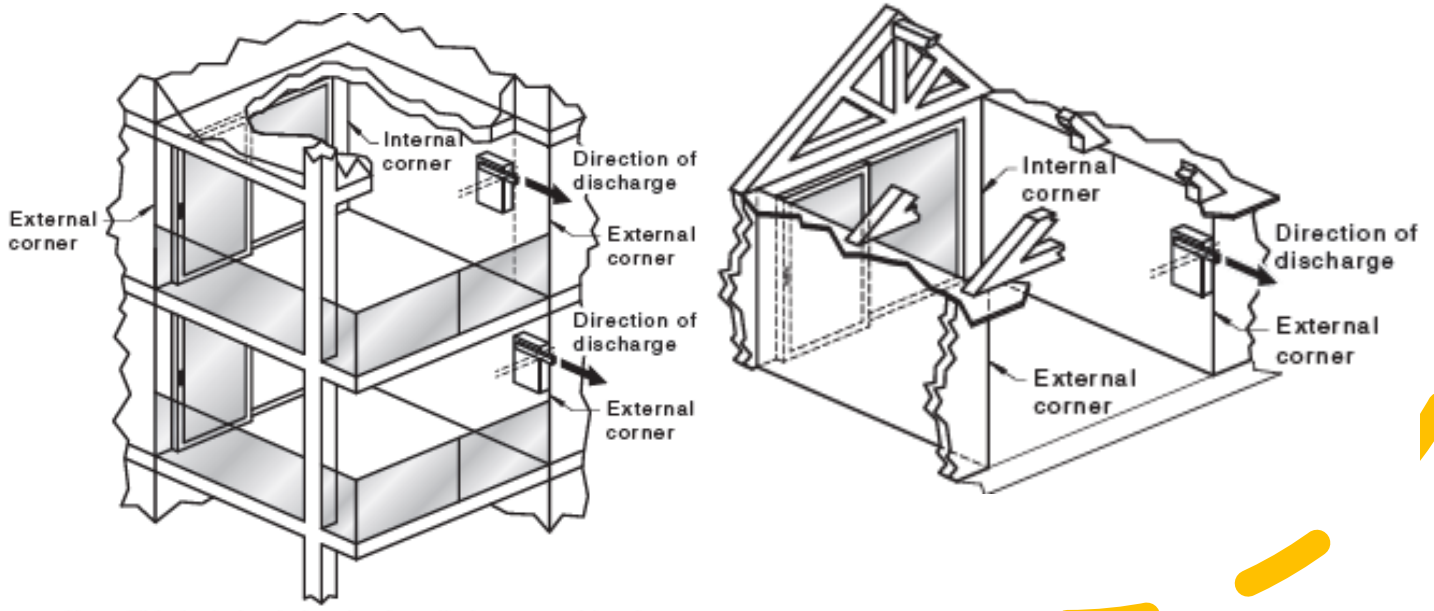
Revised flue terminal locations

Clause 6.9.4 Flue terminal under a covered area, in a recess or on a balcony

Fan assisted appliances located under a covered area now require the flue terminal to extend beyond the covered area discharging towards the open side.



Note: This includes balconies installed at ground level

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Revised flue terminal locations

Compliant water heater location with flue side diverters, note flue terminals extending past the covered area.

Revised flue terminal locations

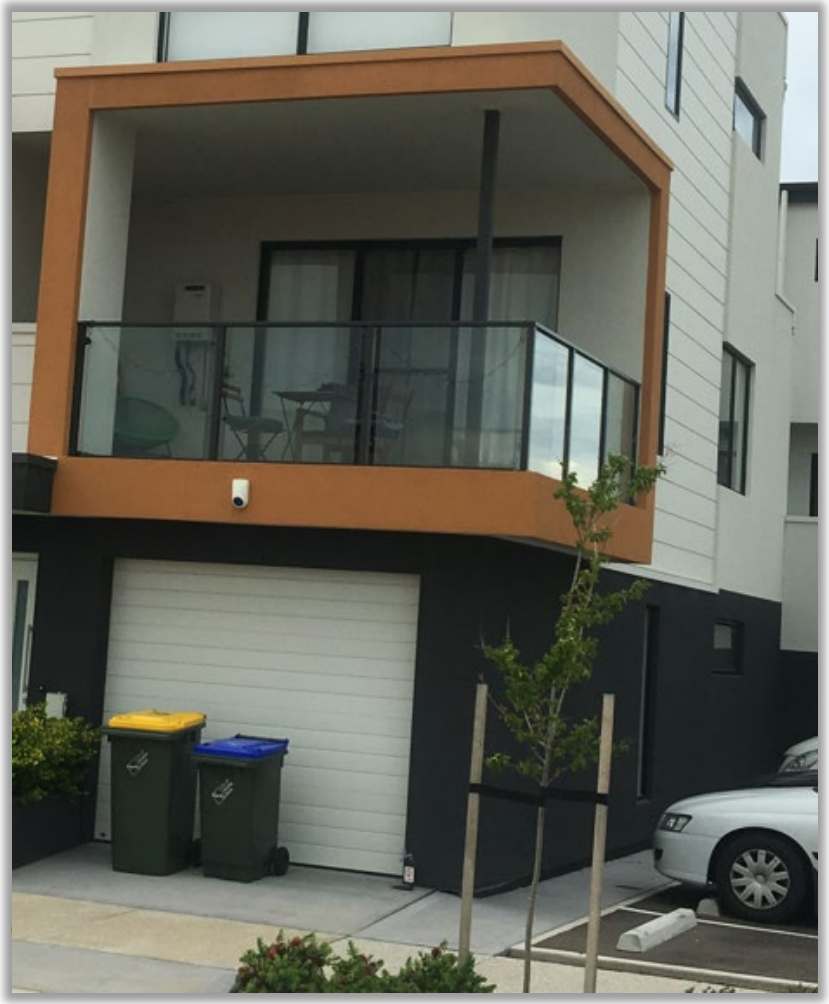
Compliant internal model water heaters installed in an area enclosed on 3 sides under a covered area, note flue kit flue terminals extends past the covered area and down pipe.

Revised flue terminal locations

<u>Non-compliant</u> flue terminal location, flue side diverter does not extend past the covered area, owner could potentially have pull down blinds installed blocking the flue terminal creating ventilation hazards.

Revised flue terminal locations

Water heaters installed in balconies which have 2 sides open under a covered area become non-compliant when pull down blinds are installed, creating ventilation hazards.



Audit / Incident Feedback

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Tropical indoor pool, room heating provided by a continuous flow HWS!

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- A working hair salon which is undergoing renovation.
- New roof was installed.
- Ooops forget something!

DIY Flue Systems

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- What's the problem? Why won’t you work?
- Installed on a Natural Gas service
- Should have gone to Specsavers

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Cooker hose assembly faults

Central heater shenanigans

- Composite pipe within 1m of an appliance
- Don’t worry about the glue!

Non-Compliant LPG

- Vent relief facing upwards!
- Regulator below cylinder valves and not supported

Mad March


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End of Presentation

Thank you for watching the Gas Installation and Appliance Roadshow for 2024

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