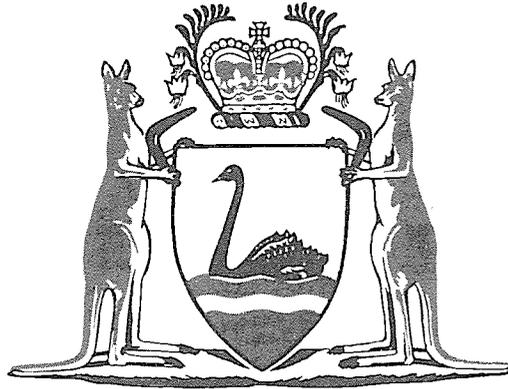


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GAS STANDARDS ACT 1972.

GAS STANDARDS
REGULATIONS

1983.

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GAS STANDARDS REGULATIONS 1983.

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GAS STANDARDS ACT 1972.

GAS STANDARDS REGULATIONS 1983.

MADE by His Excellency the Governor in Executive Council.

PART I.—PRELIMINARY.

- Citation. 1. These regulations may be cited as the Gas Standards Regulations 1983.
- Commence-
ment. 2. (1) Subject to subregulation (2), these regulations come into operation on the day that is 28 days after the day on which they are published in the *Government Gazette*.
- (2) Division 2 of Part III, Part IV, and Part V of these regulations and Schedule 5 come into operation on the prescribed day.
- Interpret-
ation. 3. (1) In these regulations unless the contrary intention appears—
- “AG” followed by a designation, refers to the text, as from time to time amended and for the time being in force, of the document so designated issued by the Australian Gas Association;
- “AS” followed by a designation, refers to the text as from time to time amended and for the time being in force, of the document so designated issued by the Standards Association of Australia;
- “apparatus” means any measuring device, pressure raising device, regulator, valve, instrument, or other device used to measure, control, or regulate gas supply to any appliance or gas fitting;
- “appliance” means an appliance which consumes gas for any purpose;
- “appliance regulator” means a regulator that controls the gas pressure to one appliance only whether or not it is an integral part of the appliance;
- “approved” means approved by the Commission or an officer of the Commission authorized by the Commission to give such approval;
- “BS” followed by a designation, refers to the text, as from time to time amended and for the time being in force, of the document so designated issued by the British Standards Institute;
- “BSP” refers to British Standard pipe thread;
- “bathroom” means a bathroom in a private residence and does not include an ablution area serving a factory or a camping area, or any other ablution area serving a communal purpose;
- “balanced flue terminal” means an externally located flue terminal that is of windproof design and through which the air required for combustion by a sealed appliance is drawn from a point adjacent to that at which flue gas is discharged;
- “bayonet fitting” means a bayonet-style outlet plug and a mating socket such that gas is not able to pass from the outlet plug until the plug is inserted in, and locked into, the mating socket;
- “bedroom” includes any room used or intended to be used as sleeping quarters;
- “breather vent” means a vent designed to permit the escape of only small amounts of gas or air from a pressure regulator or other type of valve to the atmosphere but does not include any such vent from a double block and bleed system;

- “commercial”, in relation to an appliance, refers to an appliance designed and manufactured for commercial use, whether or not the appliance is in fact so used;
- “domestic”, in relation to an appliance, refers to an appliance that is not a commercial appliance;
- “double block and vent valve” means the valve in the vent line of a safety shut-off system that consists of 2 safety shut-off valves in series with a vent between the 2 safety shut-off valves that is automatically open whenever those valves are closed and closed whenever those valves are open;
- “first-stage regulator” means a regulator that is designed to reduce the pressure of the gas supplied to a pressure that is lower than the supply pressure but higher than the operating pressure;
- “fitting” means a device used to join pipes or flues or to change the direction or diameter of a pipe or flue or to provide a branch or to terminate a pipe or flue;
- “fitting line” means any pipe, fitting, or any part thereof beyond the cylinder or, if gas is supplied from a reticulated system, beyond the point of supply that is used or intended to be used to convey gas;
- “fitting line regulator” means a regulator installed in a fitting line other than an appliance regulator;
- “flame safeguard system” means a system designed to detect flame failure and shut off the flow of gas when flame failure is detected;
- “flue” means the duct, conduit or passage through which products of combustion are or are intended to be conveyed to a flue terminal;
- “flue gas” means the products of combustion produced by an appliance that is designed to discharge products of combustion through a flue;
- “flue cowl” means a fitting placed at a flue terminal to ensure the proper discharge of flue gas;
- “flue terminal” means the point at which flue gas discharges from the flue;
- “gas” means liquefied petroleum gas, natural gas, simulated natural gas, or tempered liquefied petroleum gas;
- “gas fitter” in relation to gasfitting work, means a person authorized under these regulations to engage in or carry out such gasfitting work;
- “gasfitting work” means an operation, work, or process that, pursuant to regulation 11 is to be taken to be of the nature of gasfitting;
- “gas supplier” in relation to a consumer’s gas installation, means the person from whom gas is supplied, whether directly or through an agent, to the consumer’s gas installation or, where the consumer’s gas installation is not then connected to a supply of gas, the person from whom it is intended to obtain the supply of gas to the consumer’s gas installation, but does not include a person who supplies gas only as an agent for another person;
- “item” means an item of the Section in which the word is used;
- “laterally” used to describe the separation of 2 points, refers to the horizontal component of the distance between those points;
- “liquefied petroleum gas” or “LPG” means a mixture of hydrocarbons in liquid or vapour form, consisting mainly of butane, butene, propane, or propene, or any mixture of those substances;

- “maximum hourly input rate”, in relation to an appliance, is the energy usage of the appliance in one hour when it is operating at its maximum level of gas consumption under normal operating conditions;
- “master meter” means a meter used to measure the amount of gas supplied to the point at which delivery of the gas is made to, and the property in the gas passes to, the consumer;
- “meter” means a device used to measure the amount of gas passing through the device;
- “mobile engine” means an engine referred to in item 725;
- “natural gas” means a hydrocarbon gas, in liquefied or vapour form, consisting mainly of methane;
- “paragraph” means a paragraph of the provision in which the word is used;
- “prescribed day” means the day that is one year after the day on which these regulations are published in the *Government Gazette*;
- “prescribed pressure” means, in relation to a gas installation that uses or is to use—
- (a) tempered liquefied petroleum gas, 0.75 kPa;
 - (b) natural gas or simulated natural gas, 1.25 kPa;
 - (c) liquefied petroleum gas, 2.75 kPa;
- “protected place” means a place within any building in which a person or persons dwell or assemble for the purpose of public concourse, worship, entertainment, education, discussion, or other purpose or which is used or intended to be used as an office or offices, hospital, hotel, or a motel;
- “push-on connector” means a device for attaching a gas appliance to a flexible tube at the end of a fitting line which device consists of a special nipple and a fitting in the end of the flexible tube which, when pushed together, are held together by friction;
- “regulation” means one of these regulations;
- “regulator” means a device which automatically controls the pressure or volume of gas available beyond the point at which the device is installed;
- “safety cut-out valve” means a valve designed to automatically shut off the flow of gas when an unsafe condition is detected;
- “Schedule” means a Schedule to these regulations;
- “sealed appliance” means an appliance that draws the air it requires for combustion solely from, and discharges the products of combustion it produces solely to, the atmosphere outside the place where the appliance is installed;
- “Section” means a Section of Schedule 5;
- “service apparatus” means any works, apparatus, or system which is or is capable of being or is intended to be used for the purpose of conveying, measuring, or controlling energy in the form of gas supplied from any distribution works to the position on any premises at which delivery of the energy is, is capable of being, or is intended to be, made to the consumer, and includes any part of the service apparatus, and any other equipment or plant used in conjunction therewith, whether or not the property of the Commission;

- “service regulator” means a regulator that is part of the service apparatus and that controls the pressure of gas to the consumer’s gas installation;
- “servicing”, in relation to an appliance, means maintenance involving the adjustment and cleaning of appliances in accordance with the recommendations of the manufacturer or repair involving the exchange of components but not requiring modification of the appliance;
- “simulated natural gas” means a mixture of LPG and air having a gross heating value of more than 40 MJ/m³ but not more than 51 MJ/m³;
- “single-stage regulator” means a regulator designed to reduce the pressure of the gas supplied to the operating pressure in one step;
- “subitem” means a subitem of the item in which the word is used;
- “subparagraph” means a subparagraph of the paragraph in which the word is used;
- “subregulation” means a subregulation of the regulation in which the word is used;
- “subsidiary meter” means a meter used to measure the amount of gas supplied to a point after the point at which delivery of the gas has been made to, and the property in the gas has passed to, the consumer;
- “tempered liquefied petroleum gas” means a mixture of LPG and air having a gross heating value of more than 23.5 MJ/m³ but not more than 27.3 MJ/m³;
- “the Act” means the Gas Standards Act 1972, as amended;
- “Type A appliance” means an appliance of a class or type specified in Schedule 2;
- “Type B appliance” means an appliance that has a maximum hourly input rate exceeding 10 megajoules but is neither a Type A appliance nor a Type C appliance;
- “Type C appliance” means an appliance that is a mobile engine;
- “valve” means a device for controlling or shutting off the flow of gas;
- “vent line” means a pipe to enable the safe venting of gas intended to escape from any gas installation;
- “vertically” used to described the separation of 2 points, refers to the vertical component of the distance between those points.

(2) In these regulations, unless the contrary intention appears, the numerical values prescribed are subject to tolerances according to normal trade practice.

(3) Unless the contrary intention appears a reference in these regulations to the volume of a room or space shall be taken to be a reference to the volume that may be enclosed and includes the volume of any adjoining room or space that is not able to be separated therefrom by a door or other means of enclosure.

4. The requirements referred to in Part IV of these regulations apply in Application.
relation to—

- (a) a consumer's gas installation or part thereof constructed or installed on or after the prescribed day; and
- (b) a consumer's gas installation or part thereof constructed or installed before the prescribed day—
 - (i) on which gasfitting work has been carried out since the prescribed day; or
 - (ii) in respect of which an inspector has given to the consumer notice in writing that, in the interests of safety, those requirements or any of them, are to be complied with,

but, where notice is given under paragraph (b) (ii) to the effect that only specified requirements are to be complied with, the requirements referred to in Part IV of these regulations apply in respect of the consumer's gas installation to which the notice relates only to the extent specified in the notice.

5. These regulations do not apply to a person who is a servant of a gas Exemption.
supplier engaged in, or carrying out, gasfitting on the supply system when he is acting in that capacity.

PART II.—ADMINISTRATIVE PROVISIONS

6. The particulars required to be contained in the register kept under section 13A (4) of the Act, of persons who for the time being hold a certificate of competency, permit, or authorization under these regulations are— Particulars in register of gasfitters.

- (a) the name and address of the person;
- (b) the identifying number and the grade or kind of the certificate, permit or authorization, as the case may be;
- (c) the date on which the certificate, permit, or authorization was issued and, where applicable, the date on which it will expire;
- (d) if the person is employed, the name of the employer or, if the person is self-employed a reference to that fact;
- (e) a description of any endorsements to which the certificate, permit, or authorization is subject.

7. The persons who may be authorized by the Commission for the purpose of holding an inquiry pursuant to section 13A of the Act are the persons for the time being appointed under the State Energy Commission Act 1979, as amended, to hold any of the offices of, or known as— Persons who may be authorized to hold inquiry.

- (a) Commissioner;
- (b) Deputy Commissioner;
- (c) an Assistant Commissioner;
- (d) Secretary to the Commission; or
- (e) Manager Gas.

8. Where the Commission, by summons, requires the attendance at an inquiry held pursuant to section 13A of the Act of any person, the summons shall be in the form of Form 4 in Schedule 4. Form of summons to attend inquiry.

Fees and allowances to witnesses at inquiry.

9. The scale of fees and allowances that a person who attends for the purpose of giving evidence at an inquiry held pursuant to section 13A of the Act may be allowed is as set out in Schedule 1.

Form of notice of appeal.

10. Notice of an appeal under section 13B of the Act shall be in the form of Form 5 in Schedule 4.

PART III.—CONTROL OF GASFITTING.

Division 1—General.

Gasfitting for which certificate of competency, permit, or authorization required.

11. (1) For the purposes of the Act and these regulations any operation, work, or process engaged in or carried out on or after the prescribed day in connection with the installation, removal, demolition, replacement, alteration, maintenance or repair of a gas installation in or on any land, premises, caravan, marine craft, or other thing shall be taken to be of the nature of gasfitting but, in relation to a mobile engine—

- (a) any operation, work, or process that does not involve or affect any fitting line or apparatus; or
- (b) any adjustment of the air-fuel ratio that does not involve the disconnection or dismantling of any fitting line or apparatus,

shall not be taken to be of the nature of gasfitting.

(2) Subject to regulation 5, this Part applies to any operation, work, or process of the nature of gasfitting except the replacement of LPG cylinders.

Applications.

12. An application for a certificate of competency, permit, or authorization, as the case may be, is made in accordance with these regulations by duly completing such form as the Commission may from time to time make available for that purpose and sending the completed form, together with the appropriate application fee prescribed for that purpose in Schedule 3, to the Commission.

Certificate of competency.

13. (1) Where a person who applies in accordance with these regulations for a certificate of competency satisfies the Commission—

- (a) that he has adequate theoretical and practical knowledge, and adequate skills, to satisfactorily engage in or carry out any gasfitting work that would be authorized by the certificate of competency;
- (b) that he has an adequate knowledge of the Act and these regulations;
- (c) that he is otherwise a fit and proper person to be issued a certificate of competency,

the Commission may issue to the applicant a certificate of competency in the form of Form 1 in Schedule 4.

(2) Subject to any restriction, limitation, condition, or extension endorsed on the certificate of competency, a certificate of competency authorizes a person to whom it is issued to engage in or carry out gasfitting work of one or more of the classes referred to in regulation 14(2) as is or are specified in the certificate of competency.

Grades of certificate of competency.

14. (1) A certificate of competency shall be of a grade designated by reference to the class or classes of gasfitting work referred to in subregulation (2) that the certificate of competency authorizes the holder to engage in or carry out, and each certificate of competency shall have its grade endorsed on it.

(2) For the purposes of these regulations gasfitting work shall be taken to be of one of the following classes:

Class A—all gasfitting work on a consumer's gas installation that uses or is to use gas less dense than air other than gasfitting work classified as of Class B, E, or F.

Class B—servicing of any appliance or apparatus that uses or is to use gas less dense than air other than that classified as of Class F.

Class C—all gasfitting work on a consumer's gas installation that uses or is to use gas denser than air other than gasfitting work classified as of Class D, E, or F.

Class D—servicing of any appliance or apparatus that uses or is to use gas denser than air other than that classified as of Class F.

Class E—all gasfitting work on a consumer's gas installation to which Subsection 3 of Section 7 applies other than gasfitting work classified as of Class F.

Class F—servicing of any appliance or apparatus in a consumer's gas installation to which Subsection 3 of Section 7 applies.

15. The Commission may endorse on any certificate of competency, permit, or authorization issued by it any restriction, limitation, condition, or extension as to the authority therein conferred. Endorsements.

16. An inspector may request any person who the inspector has reason to believe has engaged in or carried out, or is about to engage in or carry out, any gasfitting work on or after the prescribed day, to produce for inspection by the inspector the certificate of competency, permit, or authorization authorizing him in that behalf, and that person commits an offence if he does not produce such certificate of competency, permit, or authorization for inspection— Production.

(a) to the inspector, forthwith; or

(b) at the head office of the Commission in Perth, or at any other office of the Commission nominated by the inspector, during the time at which the office is generally open for business, on either of the next 2 days following the request on which the office is so open.

17. The holder of a certificate of competency, permit, or authorization who changes his address from— Change of address.

(a) the address shown on the certificate of competency, permit, or authorization; or

(b) the address last notified under this regulation,

commits an offence if he does not, within 14 days of so changing his address, notify the Commission in writing of his new address.

18. (1) A person who, on or after the prescribed day, employs any other person to engage in or carry out any gasfitting work shall cause a register to be maintained in which there is recorded— Employer to keep register.

(a) the names and address of each person so employed by him; and

(b) the identifying number and the grade of the certificate of competency held by each person so employed by him, or, where such a person is not the holder of a certificate of competency but is the holder of a permit or authorization, the identifying number and the kind of the permit or authorization,

and shall make the register available for inspection by an inspector upon request.

(2) A person who fails to comply with subregulation (1) commits an offence.

Performance
of gasfitting
work.

19. (1) Gasfitting work carried out on or after the prescribed day involving the construction, installation, or maintenance of the whole or any part of a consumer's gas installation shall be so carried out that, after such construction, installation, or maintenance, every part of the consumer's gas installation on which gasfitting work was carried out or that is affected by the gasfitting work, complies with all of the relevant requirements set out in Schedule 5.

(2) A gas fitter who, on or after the prescribed day, carries out on a consumer's gas installation gasfitting work that involves the installation or alteration of any appliance so as to increase the maximum amount of gas capable of being consumed shall ensure that the fitting line through which gas is supplied is of a size that, after the gasfitting work is carried out, will comply with the requirements of these regulations and, where the gasfitting work affects an installation or part thereof that is used or to be used at a pressure that exceeds the prescribed pressure, the gas fitter commits an offence if he commences such work before calculations of the effect of the proposed work have been submitted to and approved by an inspector.

(3) Where, on or after the prescribed day, a gas fitter carries out any gasfitting work on a consumer's gas installation that is on or in a caravan or a marine craft or that include a mobile engine, the gas fitter shall on completion of the work attach to the caravan, marine craft, or mobile engine as the case may be, in a conspicuous position a notice supplied by the Commission stating that the installation complies with these regulations and, in the case of an installation that includes a mobile engine, stating the date on which the work was completed.

Preliminary
notice.

20. A person who engages in or carries out any gasfitting work, other than—

- (a) the servicing of an appliance;
- (b) gasfitting work on a LPG installation;
- (c) gasfitting work necessarily performed in effecting emergency repairs; or
- (d) gasfitting work pursuant to a notice of defects under regulation 22,

commits an offence if preliminary notice of the proposed gasfitting work in the form of Form 2 in Schedule 4 has not been duly completed and sent by prepaid post to the office of the Commission at East Perth not less than 48 hours before the gasfitting work is commenced.

Notice of
compliance.

21. (1) A person who engages in or carries out any gasfitting work, other than the servicing of an appliance or gasfitting work pursuant to a notice of defects under regulation 22, commits an offence if he does not, upon completing the gasfitting work, prepare three copies of a notice of compliance in the form of Form 3 in Schedule 4 duly completed and, within 48 hours after completing the gasfitting work, give one copy of the notice of compliance to each of—

- (a) the Commission;
- (b) where the gas supplier is not the Commission, the gas supplier; and
- (c) the person upon whose request the gasfitting work was performed.

(2) Where a person engages in or carries out gasfitting work under the supervision of another person who holds a certificate of competency, permit, or authorization under these regulations which would have authorized that other person to engage in or carry out that gasfitting work, that other person may, if he is reasonably satisfied that the gasfitting work has been carried out in accordance with regulation 19, prepare and give the copies of the notice of compliance for the purposes of subregulation (1).

(3) A person does not commit an offence against subregulation (1) by reason of his failure to prepare and give to any person a copy of a notice of compliance in relation to certain gasfitting work in accordance with that subregulation if copies of a notice of compliance in relation to the gasfitting work are prepared and so given under subregulation (2) by another person, or if he has reasonable grounds for believing that such copies have been so prepared and given.

22. (1) Where gasfitting work has been carried out contrary to regulation 19 and an inspector gives to—

Notice of defects.

- (a) the person who gave notice of compliance under regulation 21 in relation to the gasfitting work; or
- (b) where, contrary to regulation 21, no notice of compliance was given in relation to the gasfitting work, the person who carried out the gasfitting work,

a notice of defects specifying the respects in which the consumer's gas installation concerned fails to comply with Schedule 5, the person to whom the notice of defects is given commits an offence if, within seven days after the notice of defects is given, the consumer's gas installation is not made to comply with Schedule 5.

(2) It is a defence to a charge of an offence against subregulation (1) arising out of the failure of any material used, or any appliance, to meet a prescribed requirement, for the defendant to prove that, when the gasfitting work was completed, he did not know, and could not reasonably be expected to have known or ascertained, that the material or appliance, as the case may be, would not meet that requirement.

23. (1) A person who is not authorized under these regulations to engage in or carry out gasfitting work, or a particular class of gasfitting work, commits an offence if he advertizes or otherwise represents himself to be so authorized.

Misleading statements.

(2) A gas fitter who states or otherwise represents to an inspector or any other person that an appliance, apparatus, fitting, design, or other thing that is required by these regulations to be approved, or be of a type that is approved, by any person or body is in fact so approved commits an offence unless he has made reasonable enquiry into the matter and believes that statement or representation to be true.

Division 2—Special provisions as to gasfitting.

24. A gas fitter shall ensure that, where fitting line is to be installed underground so as to be beneath a building or in any other inaccessible place, all joints are welded or brazed and the requirements of these regulations as to pressure testing are satisfied before the fitting line is rendered inaccessible.

Inaccessible underground fitting line.

25. A gas fitter shall ensure that fitting line is thoroughly clean inside before it is installed, and shall ensure that—

Fitting line to be clean.

- (a) at the end of each day's work on a consumer's gas installation, any open end of any fitting line is temporarily sealed against the entry of foreign particles or other matter; and

- (b) such other precautions are taken as may be reasonably necessary to prevent the entry of foreign particles or other matter into the fitting line.

Pressure testing.

26. (1) Where a gas fitter installs or does any work on a consumer's gas installation, he shall ensure that—

- (a) the requirements of these regulations as to pressure testing are satisfied and the system is made gas-tight; and
- (b) where the gas supply is available for connection, the system is purged of all air or other gas not being the gas on which the system is to operate,

before the installation is put into operation.

(2) A person shall not use as a source of pressure for the purposes of pressure testing or locating any leak a medium other than air, carbon dioxide, nitrogen, the gas proposed to be used in the consumer's gas installation, or such other medium as is approved in writing and, where the use of water is so approved, the water shall be thoroughly removed from the installation before it is put into operation.

Manufacturer's installation instructions.

27. A gas fitter who installs an appliance in a consumer's gas installation shall have due regard to any instructions or recommendations of the manufacturer.

Installation of Type A appliances.

28. (1) A gas fitter who installs a Type A appliance in a consumer's gas installation shall attach to the appliance in a conspicuous position instructions as to the proper operation of the appliance and shall, if requested by the consumer at the time of installation and if the gas supply is then available, demonstrate to the consumer the proper operation of the appliance.

(2) A gas fitter shall not install a used Type A appliance, whether or not it has been repaired or reconditioned, in a consumer's gas installation unless he has checked and ascertained that the appliance operates safely.

(3) Where a gas fitter installs an appliance referred to in subregulation (2) after checking it in accordance with that subregulation, he shall endorse on the notice of compliance required by these regulations a note to the effect that he so checked the appliance and ascertained that it was operating safely before installing it.

Connection of Type B appliances.

29. A gas fitter who installs a Type B appliance in a consumer's gas installation shall ensure that the appliance is not permanently connected to the gas supply until it has been inspected by an inspector and a certificate has been given by the inspector to the effect that the appliance has been, or is of a kind that has been, approved as required by item 501 (3).

Installation of decorative gas log fires.

30. A gas fitter who installs a decorative gas log fire shall check the fireplace in which it is to be installed to ensure it is suitable and, after the appliance is installed, shall adjust the appliance to ensure its proper operation.

Installation and inspection of certain appliances and devices.

31. (1) A gas fitter shall not install in a consumer's gas installation an appliance that uses, in addition to the gas supplied from a reticulated system, any air, oxygen or other gas that is under pressure unless—

- (a) the approval thereto of the gas supplier has been first obtained;
- (b) the appliance is fitted with a device approved by the gas supplier to prevent the entry into the reticulated supply system of such air, oxygen, or other gas; and

(c) the consumer is notified of his obligation under regulation 34 (3) to permit the appliance to be periodically inspected and tested by the gas supplier.

(2) A gas fitter shall not install in a consumer's gas installation—

- (a) a fan, blower, or other device to enable the pressure of the gas in the consumer's gas installation, or any part of it, to be raised; or
- (b) any device that will reduce the pressure at the inlet to the master meter,

unless—

- (c) the approval thereto of the gas supplier has been first obtained;
- (d) any safety device required by the gas supplier to be fitted is fitted to the satisfaction of the gas supplier; and
- (e) the consumer is notified of his obligation under regulation 34 (4) to permit any such fan, blower or other device and any such safety device to be periodically inspected and tested by the gas supplier.

PART IV.—REQUIREMENTS FOR CONSUMERS' GAS INSTALLATIONS.

32. For the purposes of section 13 of the Act the requirements that a consumer's gas installation is required to meet are those set out in Schedule 5. Requirements of Schedule 5 to apply.

PART V.—MISCELLANEOUS.

33. Where gas is supplied to a consumer's gas installation, the gas supplier shall ensure that meters are protected against the occurrence of excessive pressure, reverse flow, or vacuum. Protection of meters.

34. (1) Where a consumer's gas installation—

- (a) includes an over-pressure protection device in accordance with item 302; or
- (b) includes a fitting line regulator at the inlet of which the gas pressure exceeds the prescribed pressure,

Periodic checking of certain consumers' gas installations.

the consumer shall cause the gas installation to be checked by a gas fitter—

- (c) within 2 years after the device or fitting line regulator is installed or, where the device or fitting line regulator was installed before the prescribed day, within 2 years after the prescribed day; and
- (d) thereafter within 2 years after it was last checked in accordance with paragraph (c).

(2) Where a consumer's gas installation is a mobile engine that uses LPG as fuel, the consumer shall cause the apparatus in the installation to be maintained and checked by a gas fitter in accordance with Rule 5.2 of AS 1425.

(3) Where a consumer's gas installation includes an appliance referred to in regulation 31(1) applies, the consumer shall permit the gas supplier to inspect and test the appliance and the device fitted to it pursuant to regulation 31(1) (b) at such times, and as often as, the gas supplier reasonably requests.

(4) Where a consumer's gas installation includes a fan, blower, or other device referred to in regulation 31(2), the consumer shall permit the gas supplier to inspect and test the fan, blower, or other device, and any safety device required by that provision to be fitted, at such times, and as often as, the gas supplier reasonably requests.

(5) A consumer required by subregulation (1) or (2) to cause his gas installation to be checked shall make and maintain a record of the date on which, and the gas fitter by whom, each such check was made, and shall make the record available for inspection by an inspector upon request.

(6) A record is not required by subregulation (5) to be kept of a check made more than 2 years previously.

Service apparatus.

35. A person, whether or not the holder of a certificate of competency, permit, or authorization, shall not install, remove, demolish, replace, alter maintain, repair, or otherwise interfere with any service apparatus unless he is authorized in that behalf by the person having the property in that service apparatus.

Operating precautions.

36. A person who operates any appliance, apparatus, or other part of a consumer's gas installation shall take such precautions as are reasonable having regard to any instructions or recommendations of the manufacturer.

Unattended marine craft.

37. A person who is in charge of a petrol-powered marine craft shall ensure that the gas supply to any appliance designed to have a continuously burning flame that is installed in the marine craft is shut off before the craft is left unattended for a period exceeding 24 hours.

Offences under these regulations.

38. (1) A person who contravenes or fails to comply with a provision of Division 2 of Part III of these regulations or a provision of this Part commits an offence but this regulation does not affect any other provision of these regulations that create an offence.

(2) A person who commits an offence under these regulations is liable to a penalty not exceeding \$200.

SCHEDULE 1.

(Reg. 9)

SCALE OF WITNESS FEES AND ALLOWANCES

	\$
(1) (a) Persons carrying on a profession or business as principals, a daily allowance not exceeding	97.00
(b) Other persons, a daily allowance not exceeding.....	78.00
(2) In fixing the allowance to be made under paragraph (1)(b) on this item, regard may be had by the Commission to the amount of salary or wages (if any) actually lost by the witness.	
(3) In addition to the foregoing allowances, a witness residing at a distance from the place of hearing may be allowed reasonable travelling expenses actually paid, and a reasonable amount for maintenance or sustenance.	
(4) The Commission may also allow such amount as has been reasonably and properly incurred and paid to a witness for qualifying to give skilled evidence.	
(5) An allowance shall not be made to an expert witness for his attendance to assist or advise counsel or the solicitor for a party during a hearing.	
(6) In the case of a person giving evidence as an expert, the foregoing allowances may be increased at the discretion of the Commission.	

SCHEDULE 2.

(Regs 3(1), 28, and Sched. 5)

TYPE "A" APPLIANCES.

1. Domestic Cooking Appliances.
2. Domestic Space Heating Appliances.
3. Domestic Laundry Dryers.
4. Domestic Refrigerators.
5. Domestic Outdoor Barbecue Grillers.
6. Water Heaters having a maximum hourly input rate not exceeding 300 megajoules.
7. Swimming Pool Heaters.
8. Commercial Catering Equipment—Boiling Tables, Open and Closed Top.
9. Catalytic Spaceheaters.
10. Domestic Decorative Gas Log Fires.
11. Incinerating Toilets.
12. Cooking, lighting, or heating appliances that use LPG and are designed for outdoor use.
13. Commercial Catering Equipment—Salamanders and Grillers.
14. Commercial Catering Equipment—Solid Griller Plates, Griddles.
15. Commercial Catering Equipment—Barbecue Grillers.
16. Commercial Catering Equipment—Ovens.
17. Commercial Catering Equipment—Boiling Water Units
18. Commercial Catering Equipment—Stock Pots.
19. Commercial Catering Equipment—Atmospheric Steamers.
20. Commercial Catering Equipment—Fryers.
21. Commercial Catering Equipment—Food Warmers, Bain-Marie.
22. Commercial Catering Equipment—Convection Ovens.

SCHEDULE 3.

(Reg. 12)

FEES.

Application for certificate of competency	\$50.00
Application for permit	\$5.00
Application for authorization	\$5.00

SCHEDULE 4.
FORMS.

(Reg. 13 (1))

Form 1.

THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA.
GAS STANDARDS ACT 1972.

CERTIFICATE OF COMPETENCY. NUMBER.....

Grade

This is to certify that:

of

.....
in the State of Western Australia whose signature appears below, has satisfied the State Energy Commission of Western Australia as to his suitability, knowledge, skill and ability to engage in or carry on gas fitting work of the class(es) indicated on this form and is authorized subject to any endorsements hereunder to engage in or carry on such gasfitting work within the State of Western Australia.

Authorized Classes of Gasfitting Work

Conditions, Limitations, Restrictions or Extensions

Date of Issue.....

for The State Energy Commission of
Western Australia

.....
Signature of Holder

THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA.
GAS STANDARDS ACT 1972.
PRELIMINARY NOTICE.

(Instructions to Gas Fitters: This notice to be forwarded to the Commission not less than 48 hours before commencement of work.)

It is intended to carry out the following gasfitting work at the address below or on the vehicle or craft indicated below and I will ensure that the requirements of the Gas Standards Act 1972 and the regulations are complied with.

ADDRESS

.....

REGISTRATION NO. (if applicable).....

.....

PROPOSED INSTALLATION DESCRIPTION (Tick as applicable)

Purpose of Installation

Domestic () Commercial () Industrial ()

Nature of Gasfitting Work

New Installation () Additional () Repair ()

Type of Gas

N.G. () S.N.G. () T.L.P. () L.P.G. ()

Type of Installation

Caravan () Marine Craft () Gas-Powered Vehicle () Other ()

Details of Proposed Gasfitting Work

(List Appliances and Rating in MJ/h When Applicable)

Note: Should any appliance listed above be a Type B appliance, print the words "Type B" boldly against the appliance listed.

.....

Gas Fitter Registration No.

Name.....Grade of Certificate of Competency

Address.....A () B () C () D () E () F ()

.....

.....

Gas Fitter's Signature.....Date

THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA

GAS STANDARDS ACT 1972

NOTICE OF COMPLIANCE.

(Instructions to Gas Fitters: Copies of this notice are to be forwarded within 48 hours of completion to the Commission, the Owner/Builder and the Gas Supplier if it is not the Commission.)

I hereby certify that the following gasfitting work at the address below or on the vehicle or craft indicated below complies with the requirements of the Gas Standards Act 1972 and the regulations made thereunder.

ADDRESS
REGISTRATION NO. (if applicable).....

PROPOSED INSTALLATION DESCRIPTION (Tick as applicable)

Purpose of Installation

Domestic () Commercial () Industrial ()

Nature of Gasfitting Work

New Installation () Additional () Repair ()

Type of Gas

N.G. () S.N.G. () T.L.P. () L.P.G. ()

Type of Installation

Caravan () Marine Craft () Gas-Powered Vehicle () Other ()

Details of Proposed Gasfitting Work

(List Appliances and Rating in MJ/h When Applicable)

Note: Should any appliance listed above be a Type B appliance, print the words "Type B" boldly against the appliance listed.

Gas Fitter Registration No.
Name.....Grade of Certificate of Competency
Address.....A () B () C () D () E () F ()

Gas Fitter's Signature.....Dated.....

I hereby certify that the appliance(s) notated as Type B above is/are approved or is/are of a kind approved for connection to a gas supply.

SIGNEDInspector

Form 4.

(Reg. 8)

THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA.
GAS STANDARDS ACT 1972.
SUMMONS TO ATTEND AN INQUIRY

To
of.....
in the State of Western Australia.

Whereas it appears to The State Energy Commission of Western Australia that on theday of.....
19.....at.....matters arose necessitating inquiry, under Section 13A of the Act, into.....

These are therefore to require you to appear at.....
.....in the said State, on the
day of.....19.....at.....o'clock in forenoon/afternoon, before.....to—

- (a) *show cause why you should not be dealt with in accordance with the provisions of the Act,
- (b) *give evidence touching the matter in question.

You are further required to bring with you and produce at the time and place abovenamed the following documents—

.....
.....

Given under my hand atin the said State,
this.....day of.....19.....

*Strike out whichever inapplicable.

.....

SECRETARY

Form 5.

Western Australia

GAS STANDARDS ACT 1972.

NOTICE OF APPEAL.

TO: THE MINISTER FOR FUEL AND ENERGY

I of

in the State of do hereby appeal against an Order made pursuant to the provisions of the Gas Standards Act 1972 on the day of19 in relation to a certificate of competency, permit or authorization, issued to me under that Act, to the effect that, (state particulars)

.....

.....

.....

I have read and understand the provisions of the said Act relating to appeals.

.....
SIGNATURE

.....
DATE

- N.B.
- (1) This notice shall be given to the Minister within 28 days after the date of the making of the abovementioned Order; and
 - (2) A copy of this notice shall be given to the Commission.

SCHEDULE 5.

REQUIREMENTS AS TO CONSUMERS' GAS INSTALLATIONS.

Section 1—meters.

101. Subject to these regulations, each meter shall be installed in a location approved by the gas supplier and shall not be moved without the approval of the gas supplier. Location of meters.
102. Each meter shall be so installed that— Position of meters, generally.
- (a) it is at all times clear of the ground and in a level position; and
 - (b) it is at all times readily accessible for reading, servicing, adjustment, or replacement.
103. A meter shall not be installed— Prohibited positions.
- (a) in a bedroom;
 - (b) in a position in which it is inadequately ventilated;
 - (c) in such a position that it will be subjected to wide variations of temperature or to other conditions that are likely to affect its accuracy;
 - (d) closer to any gas appliance combustion air inlet than 1 metre measured laterally or 2 metres measured vertically;
 - (e) in a room primarily for housing electrical meters or switchgear;
 - (f) closer to electrical equipment capable of providing a source of ignition of the gas metered or to an electric meter than 1 metre measured laterally or 2 metres measured vertically, unless the gas meter and the electrical equipment or electric meter, as the case may be, are installed in separate and adequately ventilated housings each of which is sealed from the other; or
 - (g) beneath a liquid fuel storage tank, or closer than 500 mm measured laterally to any such tank.
104. Each meter, and any associated regulator, shall be installed— Meter box, generally.
- (a) in a meter box or housing that has a supporting base and is provided specifically for that purpose; or
 - (b) otherwise to the satisfaction of the gas supplier.
105. Where a meter is installed in a cavity wall, the meter box or housing containing the meter shall be completely sealed with fireproof materials from any adjoining recess or cavity and shall be ventilated to the outside atmosphere. Meter box in cavity wall.
106. (1) A prepayment meter shall not be installed externally to any building except with the approval of an inspector given specifically in respect of that installation. Prepayment meter.
- (2) The outlet of each prepayment meter to which more than one appliance is connected shall be fitted with an approved safety cut-out valve and, where an inspector so requires in writing, any appliance connected to a prepayment meter shall be fitted with an approved flame safeguard system.
107. The fitting line from a master meter to the inlet of a subsidiary meter shall incorporate an isolating valve situated in a position adjacent to the inlet of the subsidiary meter such that it can be readily operated. Master meter outlet.

Subsidiary meter. 108. A subsidiary meter shall be fitted with approved union connections, approved flanged connections, or other approved connections.

Identification of meters. 109. Each master meter or subsidiary meter shall be clearly identifiable with the gas installation the supply of gas to which is measured by that meter.

Section 2—LPG cylinders and tanks.

Location of cylinders and regulating equipment. 201. The location of cylinders and regulating equipment shall comply with clause 9 of Australian Standard 1596.

Housings. 202. (1) A cylinder or tank or any first-stage regulator shall not be located inside a building, structure, caravan, or marine craft except within a housing specifically provided for that purpose and complying with subitem (2).

(2) A housing referred to in subitem (1) shall be—

- (a) so constructed as to be capable of containing only the required number of cylinders and regulators;
- (b) drained and ventilated to the outside air from its lowest point, so that no drainage outlet or ventilation opening is closer than 1 metre laterally to any fresh air inlet to the building, structure, caravan, or marine craft that is below the level of such an outlet or opening; and
- (c) provided at the top and bottom of the housing with ventilation openings having an area of 20 000 square millimetres for each cylinder the housing is designed to contain.

(3) No equipment other than the cylinders or their essential fittings shall be stored, placed, or allowed to remain, within the housing.

Pressure relief valve outlet. 203. (1) The pressure relief valve outlet of a cylinder or tank shall be so positioned that any gas discharged through the valve would be directed away from any building, structure, caravan, towing vehicle, marine craft, or gas installation.

(2) Except where it is located within a housing referred to in item 202 (1), the pressure relief valve outlet shall not be located in any building, structure, caravan, or marine craft.

Installation below ground level. 204. (1) A cylinder shall not be installed so as to be wholly or partly buried in the ground.

(2) Subitem (1) does not prevent the installation of a cylinder in a compartment or recess below the ground level if the cylinder and regulator are not in contact with the ground.

(3) A compartment or recess in which a cylinder is installed below the ground level shall be drained and ventilated to the outside atmosphere from its lowest level so that no drainage or ventilation opening is closer than 1 metre laterally to any opening into the building which is below the level of such outlet.

Position of cylinders. 205. (1) A cylinder exceeding 10 kg water capacity shall be installed upright upon a firm base the top of which is level and at least 25 mm above the surrounding earth and the valve of the cylinder shall be uppermost.

(2) Cylinders shall not be installed so as to be one above the other.

Securing of cylinders. 206. (1) Cylinders shall be installed in such position and manner as to be secure against accidental dislodgement.

(2) Cylinders of 220 kg water capacity (90 kg LPG) or less which are intended to be refilled *in situ* shall be installed so as to be securely held in place by brackets of adequate strength fastened to a wall or other robust anchorage.

207. (1) A regulator shall be rigidly secured by attaching it to the cylinder valve, supporting stand, or the wall of a building or other structure or the chassis of a vehicle, or by any other suitable means. Regulators.

(2) A regulator shall be so installed that the weather will not affect its operation.

208. (1) The length of connecting pipe between a single-stage regulator and a cylinder to which it is connected shall be kept to a minimum and in any case shall not exceed 1 metre. Proximity of regulator to cylinder.

(2) Subitem (1) does not apply where the regulator is connected to more than two cylinders.

209. Cylinders and associated parts of a consumer's gas installation shall be so located as not to be vulnerable to damage by vehicles. Protection from vehicles.

Section 3—Service regulators and fitting line regulators.

301. Where a section of fitting line in a consumer's gas installation is, or is intended to be, used at more than the prescribed pressure and any other section of fitting line in the consumer's gas installation is designed for use at a lower pressure, a suitable regulator shall be so installed as to limit the pressure in the section designed for use at a lower pressure to a pressure not more than that at which it was designed to be used. Certain sections to be protected.

302. Where the inlet pressure to a fitting line regulator exceeds 7 kPa or the maximum pressure for which any fitting line or gas fitting supplied through the regulator has been found upon test to be suitable, an over-pressure protection device shall be incorporated in the regulator or installed in the fitting line before the regulator to prevent the pressure at the outlet of the regulator at any time exceeding 7 kPa or that maximum pressure, whichever is less. Protection from excessive pressure.

303. A fitting line regulator installed in a building or other enclosed place that requires venting to the atmosphere for normal operation shall be fitted with a vent line unless the vent outlet is so small that gas escaping through the vent during the normal operation of the regulator is not likely to cause a hazard. Venting of regulator.

304. Each fitting line regulator shall be installed in a well-ventilated position such that it is readily accessible for servicing, adjustment, or replacement. Position of regulator.

305. (1) A vent line from a fitting line regulator or a pressure relief device shall— Vent line.

- (a) be of the same size as the vent connection if the vent line is not more than 10 metres long and has not more than two bends neither of which is tighter than a right angle;
- (b) be of a size larger than the vent connection if the vent line is more than 10 metres long, and, if it is more than 30 metres long, be of a design approved by an inspector, after taking into account the effect of inlet pressure, vent pipe flow resistance, the function of the regulator or relief device, and any design calculations submitted, as adequate to avoid an excessive back pressure; and

- (c) terminate in a position such that gas discharged from the vent line can escape freely into the atmosphere and away from any openings into a building or enclosed space, but in any event so that the termination of the vent line is not less distant—
- (i) from any opening into a building or enclosed space than 1 metre;
 - (ii) from any opening into a building or enclosed space, which opening is above the termination of the vent line if the gas vented is lighter than air or is below the termination of the vent line if the gas vented is not lighter than air, than 1 metre laterally; or
 - (iii) from any source of ignition than 2 metres laterally if the gas vented is lighter than air or 3 metres laterally if the gas vented is not lighter than air.

(2) The termination of a vent line shall be so constructed as to prevent the entry of water, insects, birds, or any other material which may cause blockage of the vent line.

Common vent outlets.

306. (1) Subject to subitem (2), a vent from a pressure relief device or a double block and vent valve shall not be connected to any other vent.

(2) A breather vent may be vented through the same manifold as any other breather vent or breather vents if the cross-sectional area of the manifold is not less than the sum of the cross-sectional areas of the 2 largest breather vents vented through the manifold.

Section 4—Fitting line and fittings.

Permissible fitting line.

401. (1) Fitting line used shall—
- (a) where installed in a protected place and used or intended to be used at a pressure of more than 20 kPa or installed in any other place and used or intended to be used at a pressure of more than 70 kPa—
 - (i) in the case of a fitting line between an LPG cylinder and a regulator, be of copper and meet the requirements of AS 1432 for Type A copper pipe or be approved in each case by an inspector;
 - (ii) in any other case, be approved in each case by an inspector;
 - (b) where installed in a protected place and used or intended to be used at a pressure of not more than 20 kPa or installed in any other place and used or intended to be used at a pressure of not more than 70 kPa—
 - (i) be of a type referred to in paragraph (a) (i);
 - (ii) be of steel and meet the requirements of AS 1074 for medium grade steel pipe;
 - (iii) be of copper and meet the requirements of AS 1432 for Type B copper pipe where the diameter of the fitting line does not exceed 50 mm, or AS 1572 where the diameter of the fitting line exceeds 50 mm;
 - (iv) be of copper, have a wall thickness of not less than 1 mm and an outside diameter of not less than 4.75 mm and not more than 10 mm, and meet the relevant requirements of AS B159;

- (v) where the consumer's gas installation is supplied or to be supplied only from a reticulated supply system and the use of such fitting line is otherwise in accordance with these regulations, be of unplasticized PVC and meet the relevant requirements of AS 1464; or
- (vi) be of a type generally approved for that purpose by the Commission or be approved in each case by an inspector.

Where in AS 1345 a manner of colouring or other means is specified for identifying the purpose for which pipe or conduit is used, fitting line shall not be so coloured or otherwise identified except as is appropriate, in accordance with that standard, to the purpose for which the fitting line is to be used.

Fitting line used or intended to be used in a consumer's gas installation at a pressure of—

- (a) more than the prescribed pressure, shall be of such size as is approved in each case by an inspector;
- (b) not more than the prescribed pressure, shall be of such size that the maximum pressure drop between the master meter or cylinder regulator outlet and any appliance is not more than—
 - (i) in the case of an installation using LPG, 250 Pa;
 - (ii) in any other case, 120 Pa,

when gas is being consumed by appliances supplied through the master meter or cylinder regulator outlet at a rate calculated by multiplying the total amount of gas consumed when all appliances are operating at their maximum level of consumption by the factor set out in the following table in respect of the total number of appliances supplied through that master meter or cylinder regulator outlet.

TABLE

Total No. of appliances	factor	Total No. of appliances	factor	Total No. of appliances	factor
1-4	1.00	30-34	0.31	55-59	0.22
5-9	0.65	35-39	0.28	60-64	0.21
10-14	0.54	40-44	0.26	65-99	0.20
15-19	0.47	45-49	0.24	100-149	0.19
20-24	0.40	50-54	0.23	150 or more	0.18
25-29	0.35				

Permissible fittings.

402. Fittings used shall—

- (a) where installed in a protected place and used or intended to be used at a pressure of more than 20 kPa or installed in any other place and used or intended to be used at a pressure of more than 70 kPa, be approved in each case by an inspector;
- (b) where installed in a protected place and used or intended to be used at a pressure of more than the prescribed pressure but not more than 20 kPa or installed in any other place and used or intended to be used at pressure of more than the prescribed pressure but not more than 70 kPa—
 - (i) be of a type referred to in paragraph (a);
 - (ii) be screwed steel fittings meeting the relevant requirements of BS 1740 and having male threads tapered;
 - (iii) be screwed galvanized malleable iron fittings meeting the relevant requirements of AS 1722, made of malleable cast iron that meets the relevant requirements of AS 1832, and having male and female threads tapered;
 - (iv) be steel butt weld fittings meeting the relevant requirements of BS 1640;
 - (v) be steel socket weld fittings meeting the relevant requirements of BS 3799;
 - (vi) be copper alloy compression fittings meeting the requirements of AS 1645 for Type 2B copper alloy compression fittings;
 - (vii) be copper alloy capillary fittings meeting the relevant requirements of AS 1585 for copper alloy capillary fittings that are for use with silver brazing alloy;
 - (viii) be moulded PVC fittings meeting the relevant requirements of AS 1464; or
 - (ix) be of a type generally approved for that purpose by the Commission or be approved in each case by an inspector;
- (c) where used or intended to be used at a pressure of not more than the prescribed pressure—
 - (i) be of a type referred to in paragraph (b);
 - (ii) be screwed galvanized malleable iron fittings meeting the relevant requirements of AS 1722, made of malleable cast iron that meets the relevant requirements of AS 1832, and have male threads tapered;
 - (iii) in the case of valves, meet the relevant requirements of AG 201; or
 - (iv) be of a type generally approved for that purpose by the Commission or be approved in each case by an inspector.

Prohibited fittings and materials.

403. There shall not be used—

- (a) any male parallel threaded fitting for the purpose of a pressure retaining joint;
- (b) any square back elbow;
- (c) any tin or composition pipe;

- (d) any push-on connector except for the connection of a laboratory bunsen burner that is not fitted with a shut-off valve;
- (e) any bitumen-lined pipe or fitting;
- (f) any cement-lined pipe or fitting except where it is used as a flue;
- (g) any pipe or fitting that is of cast iron and is jointed with lead run joints;
- (h) any threaded plastic pipe;
- (i) any brass fitting, other than one made of a non-dezincifying alloy, in such a position as to be wholly or partly buried in the ground;
- (j) any lead meter connection unless it was a part of the consumer's gas installation before the prescribed day;
- (k) any paint or red lead as a pipe jointing compound;
- (l) any plastic pipe in such a position as to be wholly or partly above the ground;
- (m) any aluminium tubing used for a purpose other than as a meter connection in such a position as to be exposed to the weather or otherwise subjected to conditions that are frequently or permanently damp or wet; or
- (n) hemp in any pipe joint.

404. Jointing shall—

Permissible jointing.

- (a) where in a protected place and subjected or to be subjected to a pressure of more than 20 kPa or in any other place and subjected or to be subjected to a pressure of more than 70 kPa, be as approved in each case by an inspector;
- (b) where in a protected place and subjected or to be subjected to a pressure of not more than 20 kPa or in any other place and subjected or to be subjected to a pressure of not more than 70 kPa, consist of—
 - (i) screwed joints for pipes of not more than 80 mm pipe size, or for pipes of more than 80 mm but not more than 150 mm pipe size that are subjected or to be subjected to a pressure of not more than the prescribed pressure;
 - (ii) welded joints, meeting the welding requirements of AS CB 15 for Class 2 welded joints, for plain steel pipes of any size;
 - (iii) brazed joints for copper pipes of any size;
 - (iv) solvent welded joints for PVC pipes of any size; or
 - (v) such other means of jointing as is generally approved by the Commission for the purpose for which it is to be used or as is approved in each case by an inspector.

405. (1) A fitting line or fitting that has a thread shall not be used if the thread is wholly or partially stripped, or is chipped, corroded, or otherwise damaged.

Threads.

(2) Threads that are to be mated shall be of matching thread types.

406. (1) Steel fitting line shall meet the relevant requirements of AS CB 18.

Steel fitting line.

(2) Where steel fitting line is welded, the welding shall meet the relevant requirements of AS CB 15 and every welded joint shall be either a vee-butt joint, a sleeve joint, or a socket joint.

Copper fitting line.

407. Where copper fitting line is brazed, the brazing shall meet the relevant requirements of AS 1566 and shall be of a brazing alloy having a melting point of more than 550°C.

PVC fitting line.

408. (1) PVC fitting line shall not be used except where—

- (a) the gas conveyed or to be conveyed in the fitting line is supplied or to be supplied only from a reticulated supply system; and
- (b) the fitting line meets the relevant requirements of, and is installed in accordance with the relevant requirements of, AS CA 67.

(2) PVC fitting line shall not be used in such a position as to be—

- (a) wholly or partly above the ground;
- (b) in or under any building or other structure; or
- (c) not readily accessible for the purposes of such repairs and maintenance as may become necessary.

Joints.

409. (1) Jointing compound, paint, or red lead shall not be applied to any type of compression joint, and any jointing compound used in any other type of joint shall be of an approved type.

(2) A joint between electrochemically dissimilar metals that is located underground shall incorporate approved insulators.

Defective, repaired, or used fitting line and fittings, and used valves.

410. (1) A fitting line or fitting that is defective or has been found to be defective and has been repaired shall not be used.

(2) A fitting line, fitting, or valve that has been previously used shall not be installed in a consumer's gas installation except as approved in each case by an inspector.

Outlets not in use to be sealed.

411. An outlet provided for the connection of an appliance shall, when an appliance is not connected to it or about to be connected to it, be sealed gas-tight in an approved manner or with an approved fitting.

Service openings.

412. A fitting line shall not be installed in or through any ventilating or other air duct, any lift well, or any clothes chute or rubbish chute.

Underground fitting line.

413. (1) A fitting line installed underground shall—

- (a) be installed sufficiently clear of other underground pipes, conduits, and structures to be safe from damage and accessible for repairs and maintenance;
- (b) be laid in a trench on a bed of sand or other filling providing continuous firm and uniform support and free of rock or other hard material, and shall be so laid as to follow the line and grade of the trench without the application of any force to hold it in place;
- (c) be buried by backfilling the trench in which it is laid with material approved by an inspector, but so that—

- (i) the backfill is thoroughly compacted, and otherwise so effected as to avoid the possibility of subsidence;

- (ii) any rock or other hard material used as backfill is not less than 150 mm from the fitting line;
- (iii) the depth to which the fitting line is buried measured to the top of the fitting line, is—
 - (I) under drives, roadways, and other places for use by motor vehicles—
 - (A) 600 mm in the case of plastic fitting line;
 - (B) 350 mm in any other case;
 - (II) in any other place—
 - (A) 450 mm in the case of plastic fitting line;
 - (B) 300 mm in any other case.

(2) Where a trench in which fitting line is installed underground is in ground that would not provide a bed meeting the requirements of subitem (1)(b), the trench shall be excavated to a sufficient depth to allow a bed not less than 150 mm deep at the shallowest point to be made of sand or other suitable filling for the fitting line to be laid on, and the fitting line shall not be laid in the trench until such bed has been made.

(3) Fitting line installed underground shall have a resistance to corrosion of not less than—

- (a) where it is beneath a building or in any other inaccessible place, that of copper;
- (b) in any other case that of galvanized steel meeting the requirements of AS 1074,

and for the purposes of this subitem a pipe coating system shall not be taken to provide the required resistance to corrosion unless, after it has been subjected to such testing as the Commission determines the Commission is satisfied that it provides the required resistance to corrosion.

(4) Fitting line installed underground shall not have a diameter of less than—

- (a) in the case of steel or copper fitting line, 10 mm;
- (b) in any other case, 15 mm.

414. (1) A fitting line shall not be embedded in concrete that contains any corrosive additive.

Fitting line in concrete.

(2) Where a fitting line is embedded in concrete—

- (a) it shall be so installed that any reinforcement in the concrete is not cut, bent, or otherwise displaced from its normal position and, where there is more than one layer of reinforcement, the fitting line is between the upper and the lower layer;
- (b) the fitting line shall, where practicable, be free of joints and such joints as may be necessary shall be welded or brazed; and
- (c) adequate protection against corrosion shall be incorporated where the fitting line passes into and out of the concrete.

Support of fitting line.

415. (1) A fitting line installed above the ground shall be supported by means of such brackets, saddles, hooks, straps, hangers, or other devices as are approved and, where support consists of a single rod hanger, the diameter of the rod from which it is made shall not be less than that set out in column 4 of the following table opposite the pipe size of the fitting line that is to be supported.

(2) The distance between the points at which fitting line that is not substantially vertical is supported shall be not more than that set out—

- (a) in the case of steel fitting line, in column 2; and
- (b) in the case of copper fitting line, in column 3,

of the following table, opposite the pipe size of the fitting line that is to be supported, or, in the case of fitting line that is of a material other than steel or copper, not more than that approved in respect of fitting line of that material and pipe size.

(3) Substantially vertical fitting line shall be supported—

- (a) where it is in a building having 2 or more floors vertically one above another, at each such floor level; and
- (b) in any case, at intervals of not more than 3 metres.

TABLE.

Column 1	Column 2	Column 3	Column 4
Pipe size (in mm)	Spacing of supports (in metres)		Minimum rod diameter for single rod hangers (in mm)
	Steel	Copper	
8	2	1	8
10	2	1	10
15	2	1.5	10
18	2	1.5	10
20	2.5	2	10
25	2.5	2	10
32	3	2	10
40	3	2.5	10
50	3	3	10
65	3	3	16
80	4	3	16
100	4	3	16
150	4	3	19
200	4	3	22

Isolating valve.

416. (1) Where more than one building is supplied with gas through a fitting line, each building shall be served by a manual isolating valve capable of shutting off the supply of gas to the building.

(2) The isolating valve required by subitem (1) shall be contained in a box that is—

- (a) located externally to the building;
- (b) in such a position and of such design as to facilitate operation of the valve; and

- (c) permanently and conspicuously marked on the lid or cover of the box with the word "GAS" so oriented as to be read by a person facing the building.

417. (1) Fitting line shall not be used to earth an electrical supply system.

Electrical safety.

(2) Fitting line shall not be less than 25 mm from any electrical wire or metallic conduit carrying electrical wire where the electrical wire is part of an electrical supply system.

418. (1) Each portion of consumer's gas installation that is operated or to be operated at not more than the prescribed pressure shall be capable, when subjected to an approved pressure holding test, of maintaining, without any loss of pressure—

Pressure holding capability of consumer's gas installation.

(a) where the volume of gas contained in the whole of the consumer's gas installation, other than in a storage cylinder, is not more than 0.01 cubic metre, a pressure of 2.5 kPa or double the pressure at which that portion of the consumer's gas installation is operated or to be operated, whichever is the greater, for a period of 5 minutes, with all appliances connected and every valve for isolating an appliance open;

(b) where the volume of gas contained in the whole of the consumer's gas installation, other than in a storage cylinder, is more than 0.01 cubic metre, a pressure of 7 kPa for a period of 7 minutes plus 2 additional minutes for each 0.01 cubic metre or part thereof by which that volume exceeds 0.01 cubic metre, with all appliances disconnected or effectively isolated.

(2) Each portion of a consumer's gas installation that is operated or to be operated at more than the prescribed pressure shall be capable, when subjected to an approved pressure holding test, of maintaining, without any loss of pressure—

(a) where the volume of gas contained in the whole of the consumer's gas installation, other than in a storage cylinder, is not more than 0.30 cubic metre, a pressure of 20 kPa or double the pressure at which that portion of the consumer's gas installation is operated or to be operated, whichever is the greater, for a period of 30 minutes;

(b) where the volume of gas contained in the whole of the consumer's gas installation, other than in a storage cylinder, is more than 0.30 cubic metre, a pressure of 20 kPa or double the pressure at which that portion of the consumer's gas installation is operated or to be operated, whichever is the greater, for a period of 12 hours or such other period as is specified by the Commission,

with all appliances disconnected or effectively isolated.

(3) Each portion of a consumer's gas installation shall be capable, when subjected to an approved pressure holding test, of maintaining, without any loss of pressure, a pressure equal to that at which it is operated or to be operated for a period of 7 minutes plus, where the volume of gas contained in the whole of the consumer's gas installation, other than in a storage cylinder, is more than 0.01 cubic metre, 2 additional minutes for each 0.01 cubic metre or part thereof by which that volume exceeds 0.01 cubic metre, with all appliances connected and every valve for isolating an appliance open.

(4) Each portion of a consumer's gas installation that is operated or to be operated at a pressure of more than 20 kPa in a protected place or more than 70 kPa in any other place shall have pressure holding capabilities, in addition to those otherwise required by this item, to the satisfaction of the Commission.

Section 5—Appliances generally.

Approval of
appliances.

501. (1) A Type A appliance shall not be installed in a consumer's gas installation unless it is the same as an appliance that is currently approved for such installation by the body known as the Australian Gas Association or the body known as the Australian Liquefied Petroleum Gas Association or it is approved for installation by the Commission.

(2) An appliance that meets the requirements of subitem (1) shall be marked with a notice to the effect that that type of appliance is so approved.

(3) A Type B appliance shall not be installed in a consumer's gas installation unless it is the same as an appliance that is currently approved for such installation by the Commission or it is individually approved for such installation by an inspector.

Type of gas.

502. (1) An appliance installed in a consumer's gas installation shall not be connected to a cylinder or reticulated supply system from which the gas supplied or to be supplied is not of a type approved for use by that appliance.

(2) An appliance installed in a consumer's gas installation shall not, without approval, have been modified after manufacture for the purpose of enabling it to use gas that is not of a type approved for use by that appliance.

No exposure
to adverse
conditions.

503. (1) An appliance any part of which would be likely to be adversely affected by wet or damp conditions shall be so located and installed as to be adequately protected from such conditions.

(2) An appliance shall not be located externally to any building unless it has been designed and approved for exposure to atmospheric and climatic conditions such as those to which it is likely to be subjected if it is so located.

(3) An appliance shall not be so located that its safe or efficient operation would be likely to be adversely affected by cooking vapours, grease, or any other substance to which it would be exposed if so located.

Avoidance of
hazards.

504. (1) An appliance shall not be so located that—

- (a) the operation of the appliance would involve a risk of igniting any vapour, liquid, or other material of a flammable nature, or any part of the building in which it was installed or the furnishings or other contents thereof; or
- (b) the appliance would unduly obstruct the normal access to or use of any portion of the building in which it was installed.

(2) Where an appliance is installed between the ceiling and the roof of a building, its base shall be separated from the structure on which it is supported by a layer of 12 mm thick asbestos millboard covered by 0.6 mm thick galvanized sheet iron or a layer of another material having at least the same strength, resistance to combustion, and shielding capacity.

Accessibility.

505. (1) An appliance shall be so located as to be readily accessible—

- (a) for the purposes of convenient and safe lighting and operation; and
- (b) for the purposes of repairs and maintenance.

(2) Subitem (1) applies notwithstanding that the appliance may be installed on the roof, or between the ceiling and the roof, of a building or in another elevated place, and there shall be provided—

- (a) adjacent to the appliance in such a position as to provide convenient access to a person servicing the appliance, a platform or other permanent surface capable of safely supporting the weight of a person; and

- (b) if the platform or other surface is not conveniently accessible by means of steps or a ladder, a permanent fixed means of access to the platform or other surface.

(3) Where an appliance is installed on a roof and the distance between an edge of the roof and the nearest part of the appliance is less than 2 metres, there shall be provided along that edge a guard rail at least 1 metre above the roof, unless the edge is adequately served by parapets or other structures that guard the edge of the roof and extend at least 1 metre above the edge of the roof.

(4) Where an appliance is installed between the ceiling and the roof of a building, there shall be adequate clearance between the appliance and components of the building to enable the proper servicing of the appliance and the removal and replacement of any components of the appliance.

506. Where an appliance is installed between the ceiling and the roof of a building, adequate lighting shall be provided for servicing the appliance. Lighting.

507. (1) An appliance shall be so located and installed that, having regard to loads and other factors associated with the operation of the appliance, excessive stresses will not be placed on the building or supporting structure. Structural constraints.

(2) Where an appliance is installed between the ceiling and the roof of a building, the appliance shall not be wholly or partly supported by the ceiling joists unless the weight is transmitted through the joists to a wall directly below the appliance and that wall is constructed as a load bearing wall.

508. (1) An appliance shall be supported and secured so as to avoid unnecessary stress being transmitted to any fitting line, either as a result of the weight of the appliance or the normal operation and handling of the appliance. Mounting.

(2) An appliance shall not depend for support wholly or in part on any fitting line.

(3) A plug used for the purpose of fixing an appliance to a masonry wall shall not be of wood.

509. (1) An appliance shall not be installed in a recess in a wall of a building, or otherwise built in, unless such installation of that appliance is approved. Built-in appliances.

(2) An appliance shall not be installed in a cupboard or other enclosed compartment unless such installation of that appliance is approved and, whether or not installation of that appliance in such a cupboard or other compartment is approved, an appliance shall not be installed in a cupboard or other compartment containing combustible material.

(3) An appliance designed and manufactured so as to be installed in a recess in a wall, or otherwise built in, shall not be installed in any other manner unless such other installation is approved.

510. (1) An appliance shall be so located that— Ventilation.

- (a) under normal operating conditions, sufficient ventilation is available to enable satisfactory combustion and, where the appliance has a flue, satisfactory operation of the flue, and to maintain the ambient temperature within safe and reasonable limits; and
- (b) the operation of mechanical ventilation or air distribution equipment will not prevent the appliance having the air required by it for proper combustion or draught diverter dilution or otherwise adversely affect the operation of the appliance.

(2) Where the combustion chamber of an appliance is designed to operate under natural draught conditions, air to the burners and to the draught diverter shall be supplied from the same air space.

(3) An appliance to which air for combustion, ventilation, or the draught diverter is required to be supplied by forced ventilation shall be fitted with an approved device that shuts off the gas supply to the appliance if the forced ventilation ceases to operate.

(4) Where the supply of air required by an appliance for combustion is capable of being automatically restricted or shut off in the event of fire by means of a device known as an automatic fire damper, that device shall be so designed that, whenever the air supply is so restricted or shut off, the gas supply to the appliance is simultaneously shut off.

(5) Except where the appliance is a refrigerator installed in a caravan or is a sealed appliance designed to draw air for combustion from a point outside the building in which it is installed and adjacent to the point where it discharges flue gas (in this item referred to as a "balanced flue appliance"), an appliance that is installed in a room or other confined space and has, either itself or together with other appliances not being balanced flue appliances, a maximum hourly input rate exceeding 3 megajoules for each cubic metre of the volume of the room or space shall be provided with sufficient air for combustion, ventilation, and the draught diverter and for the purpose of providing that air there shall be—

- (a) a louvred door; or
- (b) 2 permanent openings of which one opening shall be near the top and the other shall be near the bottom of the room or space,

permitting the passage of air between that room or space and the outside atmosphere or another room or space.

(6) The top edge of an opening required by subitem (5) to be near the top of a room or space, or the uppermost part of the open area of a louvred door provided for the purposes of complying with that subitem, shall be at least 75 mm above the level of the top of the draught diverter relief opening, and the lower edge of an opening required by subitem (5) to be near the bottom of a room or space, or the lowest part of the open area of such a louvred door, shall not be more than 100 mm above the floor level of the room or space in which the opening or door is required.

(7) The top edge of an opening referred to in subitem (6) shall be at least 50 mm above the lower edge of that opening and, except where continuous forced ventilation is provided and a lesser aggregate open area is approved in writing, the aggregate open area of each opening required by subitem (5) shall be—

- (a) where the room or space is a plant room ventilated to the outside atmosphere, 160 mm^2 for each megajoule of the aggregate of the maximum hourly input rate of all the appliances not being balanced flue appliances in the room or space;
- (b) where the room or space is—
 - (i) a plant room that is ventilated to another room or space; or
 - (ii) any room or space, not being a plant room, that is ventilated to the outside atmosphere,

$4\,000 \text{ mm}^2$ plus 325 mm^2 for each megajoule of the aggregate of the maximum hourly input rate of all the appliances not being balanced flue appliances in the room or space;

- (c) where the room or space is not a plant room and is ventilated to another room or space, $6\,500\text{ mm}^2$ plus 650 mm^2 for each megajoule of the maximum hourly input rate of all the appliances not being balanced flue appliances in the room or space,

but, where the room or space is ventilated to another room or space, that other room or space and any further room or space to which it is in turn ventilated, shall be subject to the ventilation requirements of this item as if it was, or they were, part of the rooms or space in which the appliance is, or appliances, are installed.

(8) For the purposes of subitem (7)—

- (a) “plant room” means a room or space containing appliances, whether or not together with equipment that burns any other fuel, which appliances and equipment are capable under normal operating conditions of consuming an amount of gas and other fuel the energy equivalent of which is not less in the aggregate than 300 megajoules per hour; and
- (b) there shall not be included in the calculation of the aggregate open area of any openings an opening the unobstructed dimension of which is less than 6 mm in any direction.

(9) The clearance between the draught diverter relief opening of an appliance in relation to which this item applies and the internal surface of the walls of the room or space in which the appliance is installed shall be at least 75 mm.

511. Where a space heating or central ducted warm air appliance is installed in a confined space, ducts that are sealed to the casing of the appliance shall be provided for the distribution of supply and return air circulated by the appliance so as to separate air for circulation from air for combustion or draught diverter dilution.

Ducting for certain appliances.

512. An appliance shall not be installed in a garage, or other structure used for the parking of vehicles, that is attached to a residential building unless—

Certain appliances in garages.

- (a) the appliance is fitted with a flue the flue terminal of which is so located as to discharge flue gases to the outside atmosphere;
- (b) the appliance is so installed that each burner (including the pilot burner) is at least 500 mm above floor level;
- (c) the appliance is so located as not to be vulnerable to damage by vehicles; and
- (d) the appliance is totally enclosed in a gas-tight compartment that is ventilated to the outside atmosphere, except where the garage is provided with fixed ventilation openings to the outside atmosphere and the aggregate area of the openings is at least 650 square millimetres for each megajoule of the maximum hourly input rate of the appliance.

513. (1) There shall not be installed in any bedroom, bathroom, toilet, shower room, shower cubicle, or sauna—

Restrictions as to certain rooms.

- (a) any appliance that is not fitted with a flue; or
- (b) the outlet plug of any bayonet fitting for a portable appliance.

(2) The outlet plug of a bayonet fitting shall not be installed in a room to which subitem (1) does not apply unless—

- (a) the room is used as a kitchen; or
- (b) the volume of the room is more than 30 cubic metres.

(3) An appliance shall not be installed or connected for use in a sauna except where the approval of an inspector has been given to such installation or use of that particular appliance.

Regulator and safety devices.

514. (1) Where an appliance regulator is not an integral part of the appliance that it serves, it shall be installed as near as is reasonably practicable to the appliance.

(2) An appliance that is supplied or to be supplied from a reticulated supply system and is designed to use air, oxygen, or any other gas under pressure together with the gas from the supply system shall be fitted with such safety devices, if any, as the gas supplier is satisfied will prevent the entry into the supply system of air, oxygen, or such other gas, as the case may be.

Flue where required.

515. (1) Where an appliance is installed pursuant to an approval referred to in item 501 and the approval is for the installation of such an appliance with a flue connected to it, the appliance shall not be installed in a consumer's gas installation unless it has fitted to it a flue in accordance with such approval and with these regulations.

(2) Where the flue with which an appliance is approved for installation is a natural draught flue designed to incorporate a draught diverter, the flue fitted to the appliance shall incorporate a draught diverter which shall be installed in accordance with that design.

Design of flue.

516. A flue fitted to an appliance installed in a consumer's gas installation shall—

(a) be so designed that—

- (i) any change in the direction of, or the cross-sectional size or shape of, the flue that interferes with the flow of flue gas shall be gradual so as to minimize interference with the flow of flue gas;
- (ii) in the case of a natural draught flue, the flue is, as far as practicable, vertical;
- (iii) except in the case of a powered flue system that is external to the appliance, the cross-sectional area of the flue is not, at any part of the flue, less than the cross-sectional area of the flue outlet of the appliance;

(b) in the case of a natural draught flue, be fitted with a flue cowl of an approved type unless the flue terminal is between the ceiling and the roof of a building in accordance with item 519 (3); and

(c) in the case of a natural draught flue that serves more than one appliance, be designed in accordance with design specifications to the satisfaction of the Commission.

Flue materials.

517. (1) A flue fitted to an appliance installed in a consumer's gas installation shall not incorporate any material unless that material is—

- (a) mechanically robust;
- (b) resistant to internal and external corrosion;
- (c) durable; and
- (d) non-combustible,

to the satisfaction of the Commission, and such a flue shall not incorporate soft solder so as, in any respect to affect the mechanical strength of the flue.

(2) A natural draught flue that serves a Type A appliance installed in a consumer's gas installation and that—

- (a) is more than 1.5 metres in length; or
- (b) is not readily accessible for inspection and replacement,

shall be of asbestos cement or other material that is not less resistant to corrosion than asbestos cement.

518. (1) Every joint of a flue fitted to an appliance installed in a consumer's gas installation shall be sealed and, where the joint is a lapped joint inside a building or other structure, the socket of the joint shall be formed by the top of the lower section of flue and the spigot shall be formed by the bottom of the upper section. Flue joints.

(2) Subitem (1) does not prevent the provision of a flue that consists of a flue pipe that is fitted to an appliance and discharges flue gas into a chimney but in every such case—

- (a) the flue pipe shall be so installed in the chimney that the discharge of flue gas will not be impaired or obstructed;
- (b) where loose material falling down the chimney would otherwise be likely to enter or obstruct the flue pipe, the open end of the flue pipe shall be designed, or fitted with a suitable cowl, so as to prevent such entry or obstruction; and
- (c) where any other flue gas than that discharged from the flue pipe is or may be discharged into the chimney, the flue shall be to the satisfaction of an inspector.

519. (1) The flue terminal of a flue fitted to an appliance installed in a consumer's gas installation shall not be located— Flue terminal.

- (a) less than 500 mm vertically below the eaves of a building, less than 500 mm vertically above the ground, nor less than 500 mm laterally from any return wall, chimney, or other projection of a building;
- (b) less than 1 metre laterally and 1 metre vertically from any gas meter, liquid fuel storage tank, or LPG cylinder; or
- (c) in the case of a flue terminating above a roof used or intended to be used by any person, less than 2 metres above the roof level or 500 mm above any parapet or other obstruction in the vicinity of the flue terminal.

(2) The flue terminal of a natural draught flue fitted to an appliance installed in a consumer's gas installation—

- (a) shall be so located in relation to nearby structures that wind from any direction will not cause a pressure at the flue terminal exceeding the prevailing atmospheric pressure;
- (b) subject to subitem (3), shall not be located below the level of, nor less than 500 mm from, the roof of the building or other structure in which the appliance is installed.

(3) The flue terminal of a flue fitted to a Type A appliance, other than an incinerator, may be located between the ceiling and the roof of a building if—

- (a) the maximum hourly input rate of the appliance does not exceed 3 megajoules for each cubic metre of the space between the ceiling and the roof;
- (b) the space between the ceiling and the roof is ventilated—
 - (i) where the roof is tiled in a way that permits adequate air movement between the tiles, by having at each of 2 sections of the roof that are over opposite sides or ends of the space an

area of at least 10 square metres of the tiles in which there is not any roof felt, foil, or other material that would inhibit the movement of air between the roof space and the outside atmosphere through the spaces between the tiles;

- (ii) in any other case, by having 2 ventilation openings that are at opposite sides or ends of the space and that have a total area of not less than 0.1 square metre;
- (c) where the roof is of a metallic roofing material, there is fitted below the rafters and above the flue terminal a protective shield the area of which is not less than 0.36 square metre;
- (d) the flue terminal is not less than 300 mm above the level of the ceiling, not less than 2 metres from any eaves, nor less than 1 metre from a dividing wall or other partition that divides the space between the ceiling and the roof; and
- (e) the flue terminal is not less than 500 mm from the roof or any combustible material above the flue terminal.

(4) Except where a room heater has a maximum hourly input rate not exceeding 50 megajoules and is fitted with a flue, whether of a power-assisted or natural draught type, that has a balanced flue terminal, the flue terminal of the flue fitted to an appliance installed in a consumer's gas installation shall not be located less than 500 mm laterally from, not less than 1 metre vertically below, a fresh air inlet.

Fixing and
connection of
flues.

520. (1) A flue fitted to an appliance installed in a consumer's gas installation shall be securely fixed and adequately supported so as to ensure its stability.

(2) Where the flue fitted to an appliance is not more than 200 mm in diameter and disconnection of the flue from the appliance would not otherwise be reasonably practicable without disturbing roof flashing, a slip socket or bolted sleeve shall be used to connect the flue to the appliance.

Insulation and
fire safety of
flues.

521. Where any part of a flue fitted to an appliance installed in a consumer's gas installation is located within, passes through, or is near to, a wall or partition—

- (a) the flue shall be separated from any combustible material forming the wall or partition or any part of the wall or partition by such distance and, where necessary, by such protective material as to adequately protect the combustible material from being ignited by heat from the flue;
- (b) the flue shall be so installed or insulated from any material, whether combustible or non-combustible forming the wall or partition or any part of the wall or partition that the temperature measured at any part of the wall or partition does not under any operating conditions exceed the ambient temperature by more than 50°C.

Separation of
flues from
other services.

522. Where a flue fitted to an appliance installed in a consumer's gas installation is less than 75 mm from an electric cable, electric fitting, electric apparatus, telephone or other intercommunication cable, or television antenna wire, it shall be adequately insulated therefrom so as to ensure that no damage is caused by, or interference with operating efficiency results from, heat from the flue.

Used flues.

523. A flue shall not be fitted to an appliance installed in a consumer's gas installation if the flue has been used as a flue on any other appliance or device that was not using fuel of the same kind unless it is clear of obstructions and otherwise complies with the requirements of these regulations for flues.

524. (1) A brick flue serving an appliance installed in a consumer's gas installation shall be thoroughly sealed so as to prevent the escape of flue gas into wall cavities or otherwise except through the flue terminal and shall not be obstructed by any material used in or resulting from construction or in any other way. Brick flues and chimneys.

(2) A chimney shall not be used for the flue of an appliance installed in a consumer's gas installation if the chimney has in it any baffle or damper plate nor unless the chimney is fitted with a suitable flue cowl located at least 200 mm above the top of the chimney.

525. An appliance installed in a consumer's gas installation shall not be served by a flue that is part of a multiple flue system unless— Multiple flue systems.

- (a) each appliance served by the multiple flue system is fitted with an approved flame safeguard system; and
- (b) the design of the multiple flue system has been approved by an inspector.

526. A powered flue system fitted to any appliance installed in a consumer's gas installation shall incorporate a device of a design that has been approved by an inspector to shut off the flow of gas to each appliance served by the powered flue system if the fan in the powered flue system ceases to function effectively. Powered flue systems.

527. Every appliance installed in a consumer's gas installation shall be connected to the gas supply by means of an accessible union fitting of a suitable size so as to facilitate the disconnection of the appliance from the gas supply. Appliance connection.

528. (1) Where an appliance is installed in a consumer's gas installation and— Isolating valve.

- (a) the appliance does not incorporate, as an integral component of the appliance, a device to shut off the flow of gas through the appliance when it is not in operation; or
- (b) whether or not the appliance incorporates a device such as is referred to in paragraph (a), the premises in which the appliance is located are used for a commercial or industrial purpose,

a valve of a suitable size shall be fitted that is capable of shutting off the flow of gas to the appliance.

(2) A valve required by subitem (1) shall be fitted adjacent to the appliance it serves and before any other controls of the appliance and before the union fitting required by item 527.

529. (1) An appliance shall not be connected to a consumer's gas installation by means of flexible pipe unless the use of such flexible pipe for that purpose is approved and, in any case, flexible pipe shall not pass from one room to another, nor through any wall, partition, ceiling, floor, or through the panel or casing of any appliance, and shall be as short as practicable. Flexible pipe.

(2) Where flexible pipe is used for the connection of an appliance to a consumer's gas installation it shall be so installed that—

- (a) it will not be exposed to a temperature exceeding that specified in the approval given for such use of the flexible pipe;
- (b) it is not likely to be abraded, kinked, or damaged in any way;
- (c) it is readily accessible for inspection.

(3) Where in accordance with these regulations flexible pipe is used for the connection to a consumer's gas installation of—

- (a) an appliance that is fitted with castors, provision shall be made to ensure that the flexible pipe will not be subjected to strain through movement of the appliance;
- (b) a fully portable gas room heater that does not need to be mobile in the course of normal operation, the end of the flexible pipe that is connected to the heater shall be fitted with a threaded or approved fitting and the other end shall be fitted with a secure metal fitting that can be readily connected to or disconnected from a mating fitting that automatically shuts off the supply of gas when the fitting is disconnected.

Electrical.

530. (1) Every appliance that is installed in a consumer's gas installation and incorporates electrical apparatus shall be wired as approved.

(2) An appliance installed in a consumer's gas installation and connected to a single phase electricity supply shall be provided with—

- (a) a double pole isolating switch located adjacent to the appliance and in a readily accessible position; or
- (b) a 3 pin plug that fits into a general purpose outlet, with a switch, located adjacent to the appliance and in a readily accessible position.

Section 6—Additional provisions for particular appliances.

Cooking appliances.

601. (1) A commercial cooking appliance installed in a consumer's gas installation shall be so located that—

- (a) there is a distance of not less than 300 mm between any burner of the appliance and any combustible material.
- (b) there is a distance of not less than 50 mm between a flue box or draught diverter of the appliance and any combustible material; and
- (c) the distance, measured vertically, between the uppermost burner of the appliance and any combustible material is not less than—
 - (i) 600 mm where the combustible material is shielded from the burner by a layer of 6 mm thick asbestos millboard covered by 0.6 mm thick galvanized sheet iron or a layer of another material having at least the same resistance to combustion and shielding capacity;
 - (ii) 1 metre where the combustible material is not shielded as described in subparagraph (i).

(2) A domestic cooking appliance installed in a consumer's gas installation shall be so located that—

- (a) there is a distance of not less than 200 mm, measured laterally, between each burner of the appliance and any combustible material other than material at a level that is 13 mm or more below the level of the burner;
- (b) the distance measured vertically, between the uppermost burner of the appliance and any combustible material is not less than—
 - (i) 450 mm where the combustible material is shielded from the burner by a layer of 6 mm thick asbestos millboard covered by 0.6 mm thick galvanized sheet iron or a layer of another material having at least the same resistance to combustion and shielding capacity;

- (ii) 600 mm where the combustible material is not shielded as described in subparagraph (i) and does not form part of an exhaust fan or filter;
- (iii) 750 mm where the combustible material forms part of an exhaust fan or filter and is not shielded as described in subparagraph (i)

(3) A cooking appliance installed in a consumer's gas installation shall not be so located that any combustible material would be likely to be affected by heat from a boiling burner of the appliance.

(4) A commercial cooking appliance installed in a consumer's gas installation shall be mounted on fire resistant material having at least the same insulating capacity as 10 mm thick asbestos millboard, being impervious to cooking fats, and extending at least 50 mm beyond the edges of the appliance unless each burner of the appliance is at least 200 mm above the surface on which the appliance is mounted and the appliance incorporates a shield between each burner and the surface on which the appliance is mounted.

(5) A fryer installed in a consumer's gas installation shall not be located—

- (a) within 600 mm of a barbecue griller, unless a baffle plate extending at least 600 mm above the hob of the fryer is provided between the fryer and the barbecue griller; or
- (b) within 200 mm of a smooth plate, a griller other than a barbecue griller, or any other appliance that operates so as to expose any open flame or other source of ignition, unless a baffle plate extending to at least 100 mm above the hob of the fryer is provided between the fryer and the other appliance.

(6) A commercial cooking appliance installed in a consumer's gas installation and being a combination unit incorporating more than one cooking facility shall have a separate isolating valve and union serving each cooking facility that is supplied through a common inlet connection and, where 2 or more inlet connections are provided, each connection shall be separately connected to the installation and provided with its own isolating valve.

(7) A commercial cooking appliance, other than an appliance incorporating an LPG cylinder as an integral part of the appliance, that is mounted on wheels, castors, or any other device designed to make it mobile shall incorporate or be provided with an adequate means of restraint to prevent movement of the appliance while it is in operation.

(8) A cooking appliance installed in a consumer's gas installation not being a mobile installation shall be so installed that any cooking surface or oven rack, of the appliance is at all times maintained in a horizontal plane.

602. (1) A gas water heater that does not have a storage facility for heated water but through which heated water may be obtained at more than 1 outlet shall not be installed in a bedroom, bathroom, shower room, shower cubicle, sauna, or toilet unless it is a sealed appliance.

Water heating appliances.

(2) A gas water heater that has a storage facility for heated water or through which heated water may be obtained at only 1 outlet shall not be installed in a bathroom, shower room, or shower cubicle unless—

- (a) it is a sealed appliance; or
- (b) the maximum hourly input rate of the heater does not exceed 40 megajoules.

(3) A gas water heater that does not have a storage facility for heated water—

- (a) shall, where it is fixed to a wall in which there is any combustible material, be mounted on—
 - (i) suitable fire resistant material that extends at least 15 mm beyond the projection onto the wall of the heater; or
 - (ii) spacers such that there is an air space if not less than 25 mm between the case of the heater and any combustible material;
- (b) shall not be installed in a cupboard or like compartment unless—
 - (i) the heater is a sealed appliance; or
 - (ii) the internal surfaces of the cupboard or other compartment are of a suitable fire resistant material; and
- (c) shall, where it is installed in the same room or space as a gas space heating appliance that is not fitted with a flue, be fitted with a flue that carries flue gases from the water heater vertically to a flue terminal so located as to discharge flue gases to the outside atmosphere.

(4) A gas sink heater that is not fitted with a flue shall not be installed in a consumer's gas installation unless—

- (a) the maximum hourly input rate of the heater is not more than—
 - (i) 0.5 megajoules for each cubic metre of the volume of the room or space in which it is installed; or
 - (ii) 40 megajoules,whichever is the lesser; and
- (b) the room or space in which the heater is installed is provided with 2 permanent ventilation openings of which one opening shall be near the top and the other shall be near the bottom of the room or space, and each of the openings has an aggregate open area of at least 6 500 mm² and permits the passage of air between that room or space and the outside atmosphere; and
- (c) the heater is so located as not to be—
 - (i) beneath any shelves, cupboards, or other projection;
 - (ii) within a distance of 150 mm from a wall other than a wall on which it is installed; or
 - (iii) within a distance of 600 mm from a ceiling.

(5) The water outlet of a gas sink heater shall not be fitted with any device that restricts the flow of water unless the appliance as manufactured and approved is fitted with such device.

(6) A gas water heater that is mounted externally to any building or other structure shall be—

- (a) thoroughly secured and made weatherproof to the satisfaction of an inspector; and
- (b) so located that—
 - (i) the flue terminal of the heater is not less than 500 mm laterally nor less than 1 metre vertically from any openable window; and
 - (ii) the heater is sufficiently clear of trees, shrubs, and other combustible material so as not to constitute a fire hazard and has sufficient clearance for the necessary plumbing connections.

603. (1) A gas space heating appliance shall not be installed in—
- (a) any home for aged persons, sanatorium, convalescent home, kindergarten, school, or other like institution; or
 - (b) any bedroom, bathroom, shower room, shower cubicle, sauna, or toilet,
- unless it is fitted with an approved flame safeguard system.

Space heating appliances.

(2) A gas space heating appliance shall not be installed in any bedroom, bathroom, shower room, shower cubicle, sauna, or toilet unless it is fitted with a flue the flue terminal of which is so located as to discharge flue gases to the outside atmosphere.

(3) A gas space heating appliance that is not fitted with a flue shall not be installed in a private dwelling unless—

- (a) the appliance is fitted with an approved carbon dioxide sensing device; or
- (b) the appliance has a maximum hourly input rate of not more, in any case, than 25 megajoules and not more than—
 - (i) if the appliance is fitted with a thermostatic control of a type, and having a thermal input, that is approved, 0.4 megajoules for each cubic metre of the volume of the room or space in which it is installed;
 - (ii) in any other case, 0.2 megajoules for each cubic metre of the volume of the room or space in which it is installed,

and the room or space in which the appliance is installed is provided with 2 permanent ventilation openings of which one opening shall be near the top and the other shall be near the bottom of the room or space, such that the openings are separated by a distance of not less than 1.5 metres, measured vertically and each of the openings has an aggregate open area of at least 1 000 mm² for each megajoule of the maximum hourly input rate of the appliance.

(4) A gas space heating appliance that is not fitted with a flue shall not be installed in a consumer's gas installation other than one to which subitem (3) applies except as approved in each case by an inspector.

(5) A gas space heating appliance that heats wholly or partly by means of high temperature radiants or surfaces and that is not fitted with a flue shall not be installed in a consumer's gas installation so as to be located closer to any combustible material than the distance, measured vertically, set out in column 2 of the following table opposite the maximum hourly input rate set out in column 1 of that table that is applicable to that appliance unless the combustible material is shielded by a layer of 6 mm thick asbestos millboard covered by a stainless steel sheet.

TABLE

Column 1 Maximum hourly input rate of appliance (in megajoules)	Column 2 Minimum vertical clearance (in mm)
not more than 6	600
more than 6 but not more than 10.....	750
more than 10 but not more than 20.....	1 000
more than 20 but not more than 60.....	1 100

Decorative gas
log fires.

604. (1) A decorative gas log fire installed in a consumer's gas installation shall—

- (a) have a maximum hourly input rate of not more than 40 megajoules;
- (b) be fitted with a permanent pilot burner; and
- (c) be fitted with an approved flame safeguard system that, within 1.5 minutes of flame failure occurring, reduces the rate of gas flow to the appliance to less than an hourly input rate of 0.5 megajoules.

(2) A decorative gas log fire shall not be installed in a room unless the room is provided with permanent ventilation openings in one or more of its walls or the ceiling permitting the passage of air to the outside atmosphere, which openings have an aggregate open area of not less than 40 000 mm² not including the opening of any chimney, and shall not, in any case, be installed in a room in which a central heating return air register or a ventilation system exhaust register is located.

(3) A decorative gas log fire installed in a consumer's gas installation shall—

- (a) be located in a non-combustible fireplace or enclosure that is fitted with a permanent fire guard providing adequate protection against accidental ignition of clothing or other combustible material but permitting reasonable access for lighting; and
- (b) be fitted with a vertical flue that—
 - (i) has a minimum cross-sectional area of not less than 40 000 mm²;
 - (ii) is equipped with an approved cowl;
 - (iii) is not fitted with any device for closing or obstructing the flue; and
 - (iv) is at all times kept clear of obstructions.

Refrigerators.

605. (1) There shall be a distance of not less than 50 mm measured laterally between the back of a gas refrigerator installation in a consumer's gas installation and any wall, and a distance of not less than 300 mm measured vertically between the top of the flue terminal and any fixture.

(2) Where the refrigerator is connected to the consumer's gas installation by copper fitting line, the copper fitting line shall incorporate 2 loops each having a diameter of not less than 150 mm.

Laundry
Dryers.

606. (1) Subject to subitem (4), a laundry dryer installed in a consumer's gas installation shall not discharge products of combustion produced by it into the room in which it is located.

(2) Every moisture exhaust duct of the laundry dryer shall—

- (a) be of metal or an approved material;
- (b) have smooth internal surfaces;
- (c) have suitable openings to facilitate lint removal; and
- (d) discharge to the outside atmosphere.

(3) The moisture exhaust duct of a laundry dryer may be connected to the flue of that or any other laundry dryer, but shall not be connected to the flue of any other type of appliance.

(4) A domestic laundry dryer the maximum hourly input rate of which does not exceed 10 megajoules may discharge products of combustion produced by it into the room in which it is located if the room is provided

with at least 2 permanent ventilation openings of which one is within 300 mm of the floor of the room and the other is within 300 mm of the ceiling of the room, and each of which has an aggregate open area of at least 12 000 mm².

607. (1) Each gas burner of a gas-fired incinerator installed in a consumer's gas installation shall be equipped with an approved flame safeguard system that is so located that its proper operation cannot be affected by the combustion of material being incinerated.

Gas-fired
incinerators.

(2) A gas-fired incinerator installed in a consumer's gas installation shall be fitted with a flue that—

- (a) except as otherwise approved, exclusively serves that incinerator and is not connected to the flue of any other type of appliance;
- (b) discharges flue gas to the outside atmosphere in such a position as to avoid any fire hazard or nuisance arising from the discharge of flue gas;
- (c) where the flue serves a sanitary incinerator, is constructed of asbestos cement or another material having at least the same resistance to corrosion;
- (d) in the case of a metal flue—
 - (i) is constructed of 1.2 mm thick mild steel or another metal that is at least as durable and capable of withstanding a temperature of 300°C; and
 - (ii) is readily accessible for inspection over its entire length; and
- (e) has provision for the removal of ash from—
 - (i) any vertical section of more than three metres in length; and
 - (ii) any lateral section of more than one metre in length,
 and, where such provision is by means of a tee-piece, the opening for the removal of ash shall be fitted with a suitable cap.

(3) There shall be sufficient clearance or other means of insulation between every part of a gas-fired incinerator or its flue and any combustible material to ensure that such material is not exposed to a temperature of more than 70°C.

(4) There shall be permanently and conspicuously displayed on or adjacent to every gas-fired incinerator that is not exclusively for private use instructions as to the kinds of materials that the incinerator is designed to be suitable for and as to the safe operation of the incinerator.

608. A gas light installed in a consumer's gas installation shall be located—

Gas lights.

- (a) in the case of a light of an enclosed type, so as to be not less than 450 mm, measured vertically and not less than 150 mm, measured laterally, from any combustible material;
- (b) in the case of an open flame light, in such position, and at least such distance from any combustible material, as is approved in each case by an inspector.

609. (1) Pipes carrying water to or from a gas swimming pool heater—

Swimming
pool heaters.

- (a) shall be of unlagged copper to a distance of at least two metres from the heater;
- (b) unless the heater is installed below the water level of the pool, shall be so arranged as to be higher than the heater in the immediate vicinity of the heater and shall be fitted with an automatic air vent at the highest point; and

- (c) in the case of a pipe carrying water to the heater, shall be fitted with a non-return valve between the filter and the heater except as otherwise approved in each case by an inspector.
- (2) A gas swimming pool heater installed below the water level of the pool shall be fitted with an anti-siphoning device.
- (3) A gas swimming pool heater shall be fitted with—
 - (a) a device to ensure that water is flowing through the heater before the main gas valve permits the flow of gas to the burners of the heater; and
 - (b) a pressure relief device meeting the relevant requirements of AS 1357 if the pipe carrying water from the heater is equipped with a valve.
- (4) A gas swimming pool heater shall not be installed in such a position as to heat water that has passed through an automatic chlorinator unless the water has been circulated through the pool since it last passed through the chlorinator.
- (5) A gas swimming pool heater shall be installed on a non-combustible base except as otherwise approved in each case by an inspector.

Direct gas-fired air heaters.

610. A direct gas-fired air heater shall not be installed in a consumer's gas installation except as approved in each case by an inspector.

Pottery kilns.

611. (1) A gas-fired pottery kiln installed in a consumer's gas installation—

- (a) shall be so located that the floor or other means by which the kiln is supported is of non-combustible material and of adequate strength to safely support the weight of the kiln when fully loaded;
 - (b) shall be fitted with an approved flame safeguard system that shuts off the flow of gas—
 - (i) if atmospheric-type main burners are being used and the maximum hourly input rate of the kiln is not more than 500 megajoules, within 45 seconds of flame failure occurring;
 - (ii) if atmospheric-type main burners are being used and the maximum hourly input rate of the kiln is more than 500 megajoules but not more than 1 000 megajoules, within 15 seconds of flame failure occurring;
 - (iii) in any case where main burners that are not of an atmospheric type are being used, within 3 seconds of flame failure occurring; and
 - (c) shall be fitted with a flue the flue terminal of which is so located that flue gases are discharged to the outside atmosphere and a downdraught cannot result from such atmospheric conditions as may prevail.
- (2) A flue required by subitem (1)—
- (a) shall not incorporate any metal that is less durable than 1.2 mm thick mild steel;
 - (b) shall be so constructed and located that every part of it, that is metal is readily accessible for inspection and maintenance and
 - (c) shall not be fitted with a flue damper that is able to be completely closed while the kiln burner is alight or would be capable of otherwise causing any unsafe condition.

- (3) There shall be a distance of not less than—
- (a) 450 mm between any combustible material and any part of a flue, hood, or canopy for the removal of products of combustion from a gas-fired pottery kiln installed in a consumer's gas installation unless the combustible material is shielded or otherwise insulated so that its temperature does not, under any operating conditions, exceed 70°C; and
 - (b) 2 metres between the lowest part of a hood or canopy referred to in paragraph (a) and the floor.

612. (1) A gas engine installed in a consumer's gas installation other than a mobile engine shall be connected thereto by means of flexible pipe in accordance with item 529.

Stationary gas engines and turbines.

(2) A gas engine or turbine installed in a consumer's gas installation other than a mobile engine shall be equipped with a device, other than a carburettor, that is located before the flexible pipe required by subitem (1) and shuts off the flow of gas when the engine or turbine stops or for any reason fails to ignite the gas.

(3) A room in which a gas engine or turbine installed in a consumer's gas installation is located, being a room that is supplied by mechanical means of ventilation with air for combustion, shall—

- (a) if the room is continuously attended whenever the engine or turbine is operating, be equipped with an alarm system that indicates any failure of the mechanical means of ventilation;
- (b) if the room is not continuously attended whenever the engine or turbine is operating, be equipped with a device that shuts off the flow of gas when the mechanical means of ventilation fails.

(4) The exhaust system of a gas engine or turbine installed in a consumer's gas installation other than a mobile engine—

- (a) shall, except as otherwise approved in each case by an inspector, incorporate a flexible metallic connection that is—
 - (i) designed to minimize the likelihood of a fracture resulting from vibration or from expansion and contraction;
 - (ii) fitted so as to prevent the leakage of exhaust gases from the exhaust system; and
 - (iii) adequately supported;
- (b) shall incorporate provision to prevent damage resulting from the ignition of unburnt gas; and
- (c) shall not, except as approved in each case by an inspector, be so designed that exhaust gases from more than one engine or turbine are combined in the same manifold, or the flue gases of any other appliance are able to enter the exhaust system of the engine or turbine.

(5) The material used in the construction of the flue of a gas engine or turbine installed in a consumer's gas installation other than a mobile engine shall be at least as durable as 1.5 mm thick mild steel and the flue shall be so constructed and located that every part of it is readily accessible for inspection and maintenance.

Section 7—Additional provisions for particular types of gas installations.

Subsection 1—Caravans.

Application.

701. This Subsection applies to every consumer's gas installation that is on or in a vehicle that is, for the purposes of the Road Traffic Act 1974, as amended, a caravan but not to any other consumer's gas installation.

Accessibility.

702. (1) Every cylinder, regulator, and fitting line that is part of a consumer's gas installation and all safety equipment pertaining thereto shall be so located that access to the cylinder valves is readily available and operation of the valves is not obstructed or hindered.

(2) Every union, joint, sectional cock and valve that is part of a consumer's gas installation shall be so located as to be readily accessible and, where a joint or union is located behind a light fitting sufficient fitting line shall be provided to enable the joint or union to be readily withdrawn for the purpose of inspection and maintenance.

(3) Except where a joint or union is required to be located behind a light fitting, a joint or union shall not be located behind wall linings.

Cylinders and associated equipment.

703. (1) A cylinder, its valve and regulating equipment, and every part of the installation between the cylinder and the outlet of the primary pressure regulator shall be mounted—

- (a) externally on the chassis of the caravan in a position close to the towing hitch;
- (b) in a recess in the caravan that—
 - (i) is gas-tight to the inside of the caravan;
 - (ii) is lined with a non-combustible material;
 - (iii) is vented to the outside atmosphere; and
 - (iv) is not accessible from the inside of the caravan; or
- (c) in such other location outside the caravan as is approved by an inspector.

(2) Subitem (1) does not apply in relation to a cylinder if—

- (a) the cylinder is an integral part of a portable appliance;
- (b) the capacity of the cylinder is not more than a water capacity of 5.5 kilograms or a propane capacity of 2.25 kilograms; and
- (c) there is not, inside the caravan, more than 6 cylinders nor cylinders the aggregate capacity of which is more than a water capacity of 11 kilograms or a propane capacity of 4.5 kilograms.

(3) Cylinders shall be installed in an upright position, with the valve uppermost and shall be firmly secured in place by means capable of withstanding a load in any direction equal to 4 times the combined weight of the cylinder when full and its carrier, and the cylinder shall be so located that there is at all times adequate clearance between the cylinder and the road.

(4) Where the pressure regulator is not secured to the cylinder valve, provision shall be made by means of a suitable loop configuration or a flexible connection to ensure adequate flexibility between the cylinder and the regulator and, where the regulator is not firmly secured to the chassis of the caravan, flexibility between the regulator and the fitting line carrying gas to appliances in the caravan shall be provided by means of—

- (a) a section of flexible fitting line having a length of not less than 0.3 metre and not more than 0.6 metre; or
- (b) a loop of copper fitting line, or a section of copper fitting line having a configuration at least as flexible as a loop.

704. (1) Fitting line shall have as few joints as practicable, any points at which fitting line branches shall be located outside the caravan beneath the floor, and the section of fitting line that carries gas to an appliance shall enter the caravan through the floor as close as practicable to that appliance.

Fitting line.

(2) Fitting line, other than that section which carries gas through the floor and directly to an appliance, shall—

- (a) be located outside any insulation or false bottom in such a position as to be readily accessible for inspection and maintenance and be protected from material flung up from the road during travel;
- (b) where the fitting line follows a structural member, be attached to the side of the member;
- (c) be protected by a rubber grommet or other suitable means at each point at which it passes through a structural member or the floor;
- (d) incorporate a suitable loop configuration or other means to ensure adequate flexibility in sections of fitting line carrying gas to an appliance and in other places where such flexibility is necessary; and
- (e) be securely supported by means of clips or other devices that are of the same material as, or a material compatible with the fitting line, and are spaced so that—
 - (i) the distance between adjacent clips or other devices supporting substantially vertical fitting line is not more than that set out—
 - (I) in the case of mild steel fitting line, in column 2; and
 - (II) in the case of copper fitting line, in column 4,
 of the table following this subitem, opposite the pipe size of the fitting line that is to be supported or, in the case of fitting line that is of a material other than wrought iron, mild steel, or copper, so that that distance is not more than that approved in respect of fitting line of that material and pipe size;
 - (ii) the distance between adjacent clips or other devices supporting fitting line that is not substantially vertical is not more than that set out—
 - (I) in the case of mild steel fitting line, in column 3; and
 - (II) in the case of copper fitting line, in column 5,
 of the table following this subitem, opposite the pipe size of the fitting line that is to be supported, or, in the case of fitting line that is of a material other than mild steel or copper, so that that distance is not more than that approved in respect of fitting line of that material and pipe size;
 - (iii) the distance between each elbow, tee, or branch fitting and the nearest clip or other device supporting the fitting line is not more than 150 mm and not less than 100 mm; and
 - (iv) adequate support is given at each end of every bend in the fitting line, as close as practicable to the bend.

TABLE.

Column 1	Column 2	Column 3	Column 4	Column 5
Distance between supports (in metres).				
Pipe size	Mild steel fitting line		Copper fitting line	
	Vertical runs	Non-vertical runs	Vertical runs	Non-vertical runs
15 mm	1.25	1.00		
20 mm	1.5	1.25		
25 mm	1.5	1.25		
not more than 8 mm			1.0	0.40
more than 8 mm			1.25	0.60

Location of
appliances.

705. (1) Every gas appliance installed in a caravan shall be so located that a fire at the appliance would not obstruct the exit of a person from any part of the caravan.

(2) Where a gas appliance that requires gas to be supplied to it at more than the prescribed pressure is installed in a caravan in accordance with item 707, the appliance shall not be located in a cupboard or other enclosed compartment.

Securing of
appliances.

706. (1) Every gas appliance permanently connected to a consumer's gas installation shall be firmly fixed in place and secured against vibration.

(2) Every portable gas appliance in a caravan shall be securely packed or fixed by temporary fastenings at all times that the caravan is in motion.

Pressure.

707. (1) Subject to subitem (2), the pressure to each gas appliance installed in a caravan and in all fitting line after the pressure regulator shall not exceed the prescribed pressure.

(2) Subitem (1) does not apply in respect of—

- (a) a portable appliance that incorporates its own cylinder the installation of which is in accordance with item 703(2); or
- (b) an appliance that depends on a pressure exceeding the prescribed pressure for its proper operation, where that appliance is installed in a mobile workshop that is not used for accommodation and the pressure is limited by a regulator mounted outside the caravan to not more than the minimum pressure required by the appliance for its proper operation being a pressure of not more in any case than 400 kilopascals.

(3) Where in accordance with subitem (2) gas is carried at a pressure exceeding the prescribed pressure it shall be carried in the vapour phase.

Ventilation.

708. (1) Where any gas appliance is installed in a caravan that is for use for overnight accommodation ventilation shall be provided by means of at least 2 permanent openings to the outside atmosphere located in opposite sides or opposite ends of the caravan, of which one opening shall be not more than 0.3 metre below the level of the roof and the other shall be not more than 0.15 metre above the level of the floor.

(2) The effective ventilation area of the openings required by subitem (1) shall be not less than that set out in the table following this item in respect of a caravan of the relevant length or, if the length of the caravan is more than 7 metres, shall be not less than that obtained by applying the formula—

$$A = 700V + 1\,000(P + R + 2L + 4C + 8W)$$

where

- A is the effective ventilation area in square millimetres;
- V is the volume in cubic metres of the air space within the caravan;
- P is the number of bunks in the caravan;
- R is the number of gas refrigerators in the caravan;
- L is the number of low pressure gas lights in the caravans;
- C is the number of gas cookers, gas space heaters, and pressurized gas lights in the caravan;
- W is the number of gas water heaters in the caravan.

(3) Where a caravan that is more than 7 metres in length is, or is designed so as to be capable of being, divided into separate rooms or spaces, each such room or space shall be ventilated by means of openings located as subitem (1) would require if the room or space were an entire caravan and the openings in each such room or space shall have an effective ventilation area calculated according to the formula set out in subitem (2) except that a reference to the caravan shall, for the purposes of applying the formula, be read as a reference to the room or space.

(4) For the purposes of this item the effective ventilation area of openings required by this item is equal to twice the aggregate open area of the smaller of the 2 openings required or, if both openings have the same aggregate open area, then equal to twice that area.

TABLE.

Length of caravan	Minimum effective ventilation area (in square millimetres)
Not more than 4 metres.....	24 000
More than 4 metres but not more than 5 metres.....	30 000
More than 5 metres but not more than 6 metres.....	36 000
More than 6 metres but not more than 7 metres.....	42 000

709. (1) Where a gas refrigerator is installed in a caravan in a cupboard or other enclosed compartment—

Refrigerators.

- (a) that cupboard or compartment shall be provided with ventilation additional to that required by item 708 and that ventilation shall be by means of at least 2 permanent openings to the outside atmosphere and, unless otherwise approved, so that one opening shall be near to the top and the other near to the bottom of the cupboard or compartment; and
- (b) the refrigerator shall be so positioned in the cupboard or compartment that its flue is adjacent to the wall of the caravan in which the ventilation openings are situated.

(2) Each of the 2 ventilation openings required by subitem (1) shall have an aggregate open area of not less than that set out in the table following this item in respect of a refrigerator of the relevant storage capacity.

(3) The lower vent of a gas refrigerator installed in a self-propelled caravan shall be at least 1.2 metres, measured laterally, from the fuel tank filler of the caravan.

TABLE.

Storage capacity of refrigerator (in cubic metres)	Aggregate open area of each ventilation opening (in square millimetres)
Less than 0.1	32 500
Less than 0.2 but not less than 0.1	45 000
Not less than 0.2	65 000

Room and water heaters.

710. A gas room heater or water heater installed in a caravan shall be fully flued to the outside atmosphere and the flue shall be substantially vertical over the whole of its length.

Warnings.

711. (1) There shall be kept in a conspicuous position adjacent to the cylinder located outside the caravan a metal plate not less than 100 mm by 100 mm on which there shall be legibly and clearly displayed in permanent form the following warnings:

- “
1. Close all the appliance cocks before opening cylinder valve.
 2. Check connection at appliances, regulators, and cylinders for leaks with soapy water or similar means at regular intervals and at least annually.
 3. Never use a match or flame when checking for leaks.
 4. Close cylinder valves when appliances are not in use. ”

(2) There shall be kept in a conspicuous position adjacent to one of the appliances in the caravan or, if there is only one appliance, adjacent to that appliance a card or other form of notice, protected by plastic where necessary to ensure its durability, measuring not less than 200 mm by 200 mm on which there shall be, legibly and clearly displayed in permanent form the following warnings:

- “
1. In the event of an accidental gas leak, ventilate the caravan until the air is clear.
 2. In the event of fire, immediately close cylinder valve.
 3. Close valve off, and fit sealing plug to, all spare cylinders, whether full or empty, that are not connected.
 4. Additions, alterations, or repairs to the LPG installation may only be performed by a gas fitter.
 5. Approval of an inspector is required before appliances may be altered.
 6. Persons should familiarize themselves with the odour of unburnt LPG to assist in the early detection of leaks.
 7. Regularly check permanent ventilators, flues, and vents to ensure that they are clear. ”

(3) There shall be kept in a conspicuous position adjacent to the fuel tank filler of every self-propelled caravan in which there is installed any gas appliance a legible and clear notice in permanent form setting out the following warning:

“ Danger—Ensure all gas appliances are turned off before refuelling. ”

Subsection 2—Marine craft.

712. This Subsection applies to every consumer's gas installation that is on or in a marine craft but not to any other consumer's gas installation. Application.

713. (1) Every cylinder, regulator, and fitting line that is part of a consumer's gas installation and all safety equipment pertaining thereto shall be so located that access to the cylinder and the cylinder valves is readily available and operation of the valves is not obstructed or hindered. Accessibility.

(2) Every union, joint, sectional cock, and valve that is part of a consumer's gas installation shall be so located as to be readily accessible.

714. (1) A cylinder, its valve and regulating equipment, and every part of the installation between the cylinder and the outlet of the primary pressure regulator shall be mounted— Cylinders and associated equipment.

- (a) on the upper deck or cabin top in a housing providing adequate protection against the weather and located not less than 1 metre, measured laterally, from any opening leading below deck; or
- (b) in such other position, not being in the cock-pit, as is approved by an inspector,

and shall be firmly secured in place by means capable of withstanding a load in any direction equal to 4 times the weight of the cylinder when it is full.

(2) Subitem (1) does not apply in relation to a cylinder if it is an integral part of a portable appliance, but—

- (a) the capacity of such a cylinder shall not exceed a water capacity of 5.5 kilograms or a propane capacity of 2.25 kilograms; and
- (b) where there is more than 1 such cylinder, the aggregate capacity of all such cylinders shall not exceed a water capacity of 11 kilograms or a propane capacity of 4.5 kilograms.

(3) This item applies equally to a cylinder that is not connected as to a cylinder that is connected to any appliance.

(4) Where the pressure regulator is not secured to the cylinder valve, provision shall be made by means of a suitable loop configuration or a flexible connection to ensure adequate flexibility between the cylinder and the regulator and, in any case, flexibility between the regulator and fitting line carrying gas to appliances in the craft shall be provided by means of—

- (a) a section of flexible fitting line having a length of not less than 0.3 metre and not more than 0.6 metre; or
- (b) a loop of copper fitting line or a section of copper fitting line having a configuration at least as flexible as a loop.

(5) A consumer's gas installation shall be so designed that in order to disconnect the cylinder from the consumer's gas installation it is only necessary to undo the cylinder valve union.

715. (1) An appliance, fitting line, or other part of a consumer's gas installation shall not be installed in any space that is not ventilated or that contains machinery, explosives, or highly-combustible material. Restricted spaces.

(2) Fitting line shall not be installed in any sleeping quarters.

Fitting line.

716. (1) Fitting line shall—

- (a) have as few joints as practicable and, in any case, shall not have any joints in the section of fitting line from the regulator to the point at which the fitting line branches to an appliance;
- (b) incorporate as few changes in direction as practicable and, where a change in direction is required the change shall be as gradual as practicable; and
- (c) enter the space in which the appliance to which it carries gas is installed at a point that is as close to the appliance as practicable.

(2) Fitting line shall—

- (a) be located outside any false bottom in a position that is protected and ventilated, is sufficiently elevated to be free from the effects of bilge water, and is not within 50 mm of any electrical cable or electrical fitting;
- (b) be protected at each point at which it passes through a deck or bulkhead by a rubber grommet or other suitable means that in the case of fitting line passing through a deck, creates a gas-tight seal;
- (c) incorporate a suitable loop configuration or other means to ensure adequate flexibility in sections of fitting line carrying gas to an appliance and in other places where such flexibility is necessary;
- (d) be securely supported by means of clips or other devices that are of a non-ferrous metal and are neat fitting, and that are spaced so that—
 - (i) the distance between adjacent clips or other devices supporting substantially vertical fitting line is not more than that set out in column 2 of the table following this subitem, opposite the pipe size of the fitting line that is to be supported;
 - (ii) the distance between adjacent clips or other devices supporting fitting line that is not substantially vertical is not more than that set out in column 3 of the table following this subitem, opposite the pipe size of the fitting line that is to be supported;
 - (iii) the distance between each elbow, tee, or branch fitting and the nearest clip or other device supporting the fitting line is not more than 150 mm and not less than 100 mm; and
 - (iv) adequate support is given at each end of every bend in the fitting line as close as practicable to the bend.

TABLE.

Column 1 Pipe size	Column 2 Distance between supports (in metres)		Column 3
	Vertical runs	Non-vertical runs	
Less than 6.5 mm	1		0.4
Not less than 6.5 mm	1.25		0.6

Location of Appliances.

717. (1) A gas appliance shall not be installed in a marine craft below the level of the main deck unless a device to detect the presence of flammable gas and a bilge blower, each of an approved type, are installed in the craft in such manner and position as is approved in each case by an inspector.

(2) Every gas appliance installed in a marine craft shall be so located that it is not likely to be exposed to air turbulence that would extinguish the flame.

(3) A gas appliance that incorporates a pilot burner designed to be continuously alight shall not be installed in a marine craft except—

- (a) at least 0.6 metre above the level of the main deck; or
- (b) in such other location as is approved in each case by an inspector.

718. An appliance that requires for its normal operation gas at a pressure of more than the prescribed pressure shall not be permanently installed in a marine craft except with the approval in each case of an inspector.

Pressure.

719. (1) Without limiting the requirements of item 510, where any gas appliance is installed in a marine craft the space in which it is installed shall be provided with ventilation by means of openings to the outside atmosphere that are not capable of being readily closed, one of which openings shall be near the top and the other of which shall be near the bottom of the space, and the effective ventilation area of each of which shall be not less than 325 mm² for each megajoule of the aggregate of the maximum hourly input rate of any appliances installed in the space.

Ventilation.

(2) The ventilation required by subitem (1) shall, if it is not sufficient to provide for fresh air requirements and to adequately remove any leaked gas, be supplemented by mechanical means.

(3) Where mechanical ventilation is provided in a space of which any cylinder or appliance is installed—

- (a) the fan shall be so designed and of such material as to eliminate the risk of sparks being caused by friction or impact of the impeller against the casing;
- (b) any electric motor driving a fan shall be located—
 - (i) outside the space ventilated;
 - (ii) within the space ventilated but clear of the ventilation trunking and outlets; or
 - (iii) in such other position as is approved in each case by an inspector;
- (c) ventilation outlets shall be so located as to discharge into a place that is free from any source of ignition; and
- (d) exhaust ventilation trunking shall extend to a position near to the bottom of the space and adjacent to any appliance by reason of which mechanical ventilation is required.

720. (1) Where an appliance is required by these regulations to be fitted with a flue, the flue shall be of double-seamed copper or stainless steel having a thickness of—

Flues generally.

- (a) in the case of copper, not less than 0.6 mm;
- (b) in the case of stainless steel, not less than 0.4 mm.

(2) A flue fitted to an appliance installed in a marine craft shall be provided with a protective sleeve of 6.5 mm asbestos sheeting at the point at which it passes through the side or top of the space in which the appliance is installed and, where the side or top is of a combustible material, there shall be a clearance of not less than 25 mm between the flue and the combustible material.

- (3) A flue fitted to an appliance installed in a marine craft—
- (a) shall not be fitted with a damper; and
 - (b) shall have a flue cowl or such other similar device as is approved in each by an inspector.

Refrigerators.

721. Where a gas refrigerator is installed in a marine craft in a cupboard or other enclosed compartment, that cupboard or compartment shall be provided with ventilation additional to that required by item 510 or 719 and that ventilation shall be by means of at least 2 permanent openings to the outside atmosphere each of which openings shall have an aggregate open area of not less than that set out in the table following this item in respect of a refrigerator of the relevant storage capacity.

TABLE.

Storage capacity of refrigerator (in cubic metres)	Aggregate open area of each ventilation opening (in square millimetres)
Less than 0.1	32 500
Less than 0.2 but not less than 0.1	45 000
Not less than 0.2	65 000

Room and
water heaters.

722. (1) A gas water heater shall not be installed in a marine craft except in the galley or such other place as is approved in each case by an inspector.

- (2) A gas water heater or a gas room heater installed in a marine craft—
- (a) shall not be located below the level of the main deck except as approved in each case by an inspector and subject to item 717;
 - (b) shall be fitted with a flue and a flame safeguard system.

Cooking
appliances.

723. (1) A gas cooking appliance installed in a marine craft shall be—
- (a) so located as not to be exposed to draughts; and
 - (b) mounted either permanently and securely on a base of non-flammable and non-porous material or on gimbals.
- (2) Where a gas cooking appliance is mounted on gimbals—
- (a) the cooking appliance shall be fitted with fiddle rails;
 - (b) the cooking appliance shall be connected to the gas supply by means of an approved flexible connection or by such other means as is approved in each case by an inspector.
 - (c) gimbals movement shall be limited so as to prevent any strain being placed on the flexible connection while permitting adequate movement to provide for any conditions the craft is likely to encounter; and
 - (d) the cooking appliance shall be sufficiently clear of surrounding objects and structures to allow for gimbals movement.

Warnings.

724. (1) There shall be kept conspicuously displayed in the galley of a marine craft in which any gas appliance is installed a notice on durable material setting out legibly and clearly and in permanent form the following warning:

“ All appliances must be turned off and cylinder valves must be closed in an emergency, when craft not in use, or whilst refuelling of the craft is in progress. ”

(2) There shall be kept conspicuously fixed to the housing in which any cylinder is located a notice on waterproof material setting out legibly and clearly and in permanent form the following warnings:

- “
1. Close all the appliance cocks before opening cylinder valve.
 2. Check connection at appliances, regulators, and cylinders for leaks with soapy water or similar means at regular intervals and at least every 6 months.
 3. Never use a match or flame when checking for leaks.
 4. If the craft is fitted with a flammable gas detector and bilge blower, do not light any appliance or start the motor of the craft until the detector has been checked and, if necessary, the bilge blower has been used to clear gas present.
 5. In the event of an accidental gas leak, stop all motors, close all cylinder valves, turn off all appliances and ventilate the craft until the air is clear.
DO NOT operate any electrical switches until the air is clear.
 6. Close valve off, and fit sealing plug to all spare cylinders, whether full or empty, that are not connected.
 7. Persons should familiarize themselves with the odour of unburnt LPG to assist in the early detection of leaks.
 8. Regularly check permanent ventilators, flues, and vents to ensure that they are clear.
 9. Do not stow empty cylinders in the machinery space. ”

Subsection 3—Gas-powered vehicles.

725. This Subsection applies to every consumer's gas installation that includes an engine for the propulsion of a vehicle, which engine uses for fuel any gas mixture of gas and air, but does not apply to any other consumer's gas installation whether or not that other installation is on or in a vehicle propelled by any such engine. Application.

726. Every consumer's gas installation to which this Subsection applies shall comply with AS 1425 to the extent that that standard relates to such an installation. Australian Standard 1425.

727. Apparatus used in a consumer's gas installation shall be of an approved type. Approval of apparatus.

728. An appliance other than a mobile engine shall not be connected to a storage container that provides the supply of gas to a mobile engine. Gas supply.

Subsection 4—High pressure installations.

729. Every component of a consumer's gas installation or part thereof that is to be used at a pressure of— Specific approval required.

- (a) where installed in a protected place, more than 20 kPa;
- (b) where installed in any other place, more than 70 kPa,

except fitting line complying with item 401(1)(a)(i) shall be approved for that purpose in each case by an inspector, and the installation or part thereof that is to be used at such pressure shall be generally to the satisfaction of an inspector.

