

AS 5601—2004

Australian Standard®

GAS INSTALLATIONS

Click in preview, click to buy full



STANDARDS
AUSTRALIA

Currently in preview, click buy full version

Gas Installations

Currently in preview, click buy full version

This Australian Standard was prepared by Committee AG-006, Gas Installation. It was approved on behalf of the Council of Standards Australia on 27 October 2004. This Standard was published on 4 November 2004.

The following are represented on Committee AG-006:

AGA Certification Services
Australian Liquefied Petroleum Gas Association
Energy Networks Association
Gas Appliance Manufacturers Association of Australia
Gas Technical Regulators Committee

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about Standards can be found by visiting the Standards Web Shop at www.standards.com.au and looking up the relevant Standard in the on-line catalogue.

Alternatively, the printed Catalogue provides information current at 1 January each year, and the monthly magazine, *The Global Standard*, has a full listing of revisions and amendments published each month.

Australian Standards and other products and services developed by Standards Australia are published and distributed under contract by SAI Global, which operates the Standards Web Shop.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to the Chief Executive, Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001.

This Standard was issued in draft form for comment as DR 04346 CP.

Australian Standard™

Gas installations

Originally published as AS 601 (AG 601—2000).
Second edition 2002.
Third edition designated AS 5601—2004.

COPYRIGHT

© Standards Australia International

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Published by Standards Australia International Ltd GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 6292 1

PREFACE

This Standard was prepared by the Standards Australia Committee AG-006, Gas Installation to supersede AS 5601—2002 (AG 601—2002). It is a revision of the 2002 edition and incorporates both technical and editorial amendments.

The intention of this Standard is to provide essential requirements and deemed to comply solutions and to promote uniform standards of gas installation.

This Standard is not to be regarded as a design specification or an instruction manual for untrained persons.

This Standard has no legal standing in its own right, but may acquire legal standing in either of the following circumstances:

- (a) Where adopted by a Government or other authority having jurisdiction over relevant installations.
- (b) Where adopted as part of an installation specification.

Regulatory bodies (technical regulators) may adopt this Standard. The Standard accommodates some variation of requirements among the regulatory jurisdictions. Such variations are identified in the page margin adjacent to the particular Clause. Appendix L sets out the detail of these variations or additions under the appropriate Clause number.

Where the Standard has acquired legal standing, its requirements are mandatory (variations/exceptions being indicated as described above). Matters of an advisory or explanatory nature are indicated in the following manners—

- (i) the word NOTE(S) followed by a statement(s);
- (ii) by the inclusion of them in an informative appendix.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard whereas an ‘informative’ appendix is only for information and guidance.

Terms or words that are indicated by italics in the body of the text are defined terms or words. This does not apply to any italics used in the Preface or headings or figures. Section 1 contains the definitions of such terms or words as they apply to the Standard.

In this edition a number of technical changes have been made and include, amongst others, the following—

- (A) the materials approved for use with the inclusion of composite pipe and fittings;
- (B) clearances for flue terminals;
- (C) a number of installation requirements for specific appliances; and
- (D) the inclusion of supply pressure in the pipe sizing tables.

Clause renumbering has been carried out as necessary.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE, APPLICATION AND DEFINITIONS	
1.1 SCOPE	6
1.2 APPLICATION OF THIS STANDARD	6
1.3 REFERENCED DOCUMENTS	7
1.4 DEFINITIONS	7
SECTION 2 GENERAL WORK AND SAFETY REQUIREMENTS	
2.1 ALTERATIONS, REPAIRS AND EXTENSIONS TO CONSUMER PIPING	20
2.2 TURNING ON A GAS SUPPLY	20
2.3 GAS SUPPLY AND TYPE TO BE VERIFIED BEFORE COMMENCING AN INSTALLATION.....	20
2.4 PURGING	20
2.5 SEALING OF OPEN PIPE ENDS.....	21
2.6 TESTING OF PIPING.....	21
2.7 SUBSTANCES FOR TESTING AND LOCATING GAS LEAKS	21
2.8 HOT-TAPPING OF BRANCH FITTING TO CONSUMER PIPING	21
2.9 INCREASING THE OPERATING PRESSURE OF EXISTING CONSUMER PIPING	21
2.10 DEALING WITH A DANGEROUS GAS INSTALLATION OR APPLIANCE.....	22
2.11 SAFE WORKING PRACTICES	22
SECTION 3 MATERIALS AND COMPONENTS	
3.1 MATERIALS AND COMPONENTS—GENERAL	24
3.2 MATERIAL	24
3.3 COMPONENTS	34
SECTION 4 INSTALLING CONSUMER PIPING	
4.1 CONSUMER PIPING—GENERAL	38
4.2 DESIGN OF CONSUMER PIPING	40
4.3 SUPPORT OF CONSUMER PIPING	43
4.4 CORROSION CONTROL.....	45
4.5 CONSUMER PIPING GAS PRESSURE REGULATORS.....	46
4.6 PRESSURE PROTECTION	47
4.7 VENTING	48
4.8 USE OF HOSE ASSEMBLIES	52
4.9 QUICK-CONNECT DEVICES	54
4.10 LOCATION OF CONSUMER PIPING	54
4.11 INSTALLING NON-METALLIC PIPING	58
4.12 CONSUMER PIPING IN A HIGH-RISE BUILDING	59
4.13 SUB-METERS	60
4.14 GAS PRESSURE-RAISING DEVICES	61
4.15 VENTILATION OF GAS EQUIPMENT—LIGHTER THAN AIR GASES...62	
4.16 VENTILATION OF GAS EQUIPMENT—HEAVIER THAN AIR GASES ..64	

SECTION 5 INSTALLING APPLIANCES	
5.1	REQUIREMENTS FOR APPLIANCES66
5.2	GENERAL INSTALLATION REQUIREMENTS66
5.3	APPLIANCE LOCATION69
5.4	AIR SUPPLY TO APPLIANCES.....72
5.5	INTERLOCK FOR MECHANICAL AIR SUPPLY TO APPLIANCE76
5.6	APPLIANCE CONNECTION.....76
5.7	APPLIANCE GAS PRESSURE REGULATOR78
5.8	AIR HEATING APPLIANCE IN A CONFINED SPACE78
5.9	COMBUSTION AND DILUTION AIR FOR AN APPLIANCE WITH AN OPEN FLUE79
5.10	INTERLOCK OF AUTOMATIC FIRE DAMPER AND GAS SUPPLY78
5.11	GAS SHUT OFF WHEN AUTOMATIC FIRE EQUIPMENT OPERATES...79
5.12	SPECIFIC APPLIANCES—INSTALLATION79
5.13	FLUEING.....93
SECTION 6 LP GAS SYSTEMS	
6.1	LOCATION AND INSTALLATION OF LP GAS STORAGE TANKS AND CYLINDERS105
6.2	LP GAS SYSTEMS FOR CARAVANS AND CAMPERING VEHICLES.....105
6.3	LP GAS SYSTEMS FOR MARINE CRAFT113
SECTION 7 COMPRESSED NATURAL GAS (CNG) FOR APPLIANCES IN MARINE CRAFT	
7.1	CYLINDERS.....122
7.2	REGULATING SYSTEM122
7.3	CYLINDER LOCATION123
7.4	CONSUMER PIPING124
7.5	AIR SUPPLY TO APPLIANCES.....125
7.6	APPLIANCES125
7.7	CONSUMER INSTRUCTIONS.....126
SECTION 8 INSTALLATIONS FOR THE COMPRESSING OF NATURAL GAS FOR THE FILLING OF CYLINDERS	
8.1	REQUIREMENTS FOR THE INSTALLATION OF A VEHICLE REFUELLING APPLIANCE (VRA)128
8.2	REQUIREMENTS FOR THE INSTALLATION OF A VEHICLE REFUELLING APPLIANCE (VRA) INDOORS.....129
8.3	STORAGE.....129
8.4	REQUIREMENTS FOR THE INSTALLATION OF COMPRESSING EQUIPMENT OTHER THAN A VEHICLE REFUELLING APPLIANCE (VRA)129
SECTION 9 APPLIANCE COMMISSIONING	
9.1	APPLIANCE TO BE COMMISSIONED130
9.2	COMMISSIONING OF APPLIANCE130
9.3	COMMISSIONING REQUIREMENTS.....130

	<i>Page</i>
APPENDICES	
A CONSUMER BILLING METERS	131
B LIST OF REFERENCED DOCUMENTS	133
C FIRE RESISTANT MATERIAL	137
D PURGING	139
E PRESSURE TESTING A GAS INSTALLATION	143
F SIZING CONSUMER PIPING	147
G DETERMINATION OF MAXIMUM BREATHER VENT ORIFICE SIZE FOR DEVICES NOT VENTED TO OUTSIDE ATMOSPHERE	195
H FLUE DESIGN	201
J LP GAS CYLINDERS	229
K COMBUSTIBLE GAS DETECTION SYSTEMS FOR MARINE CRAFT ..	236
L SPECIAL LOCAL REQUIREMENTS	238
INDEX	240

STANDARDS AUSTRALIA

Australian Standard
Gas installations

SECTION 1 SCOPE, APPLICATION AND DEFINITIONS

1.1 SCOPE

This Standard sets out requirements for *consumer piping*, flueing, ventilation and *appliance* installations which are associated with the use or intended use of fuel gases such as *town gas*, *natural gas*, *liquefied petroleum gas* in the vapour phase, *tempered liquefied petroleum gas*, *simulated natural gas* or any similar substance.

The requirements cover piping systems from the outlet of—

- (a) the *consumer billing meter* installation; or
- (b) the first *regulator* on a fixed *gas installation* where an *LP Gas* container is installed on the same site; or
- (c) the first *regulator* on site (if no *meter* is installed) where *LP Gas* is reticulated from storage off the site;

to the inlet of the *appliance*.

This Standard does not apply to portable or *mobile appliances* connected directly, or by *hose assembly*, to an *LP Gas cylinder*.

Requirements for installations for *caravans* and marine craft including location of storage *cylinders*, piping systems and *appliances* are also provided in this Standard.

NOTES:

- 1 The location of *consumer billing meters* is determined by the *network operator*; however, some guidelines for the locating of these *meters* are detailed in Appendix A.
- 2 The terms pipe, piping, tube and tubing are used throughout this Standard. They are to be considered to have the same meaning.

Unless specifically covered in this Standard, where *consumer piping* is to operate at a *pressure* exceeding 200 kPa, consult with the *technical regulator*.

Appliances provided for in this Standard include those *certified* by a *certifying body* and those otherwise acceptable to the *technical regulator*.

The *appliance* installation requirements cover location, ventilation, combustion air, flueing and commissioning of the *appliance*.

1.2 APPLICATION OF THIS STANDARD

The requirements of this Standard are to be used in conjunction with, but do not take precedence over, any statutory regulations which may apply in any area. The *technical regulator* may determine the extent of application of this Standard.