

GETTING TO KNOW AS/NZS 5601

Gasfitters need to become familiar with new gas installation Standard AS/NZS 5601:2010. Dr Eric Palmer explains how it came about and what it contains.

For many years, NZS 5261 has been the gasfitter's bible for installation of gas pipework and equipment and gas appliances in buildings. There has been a companion Standard, NZS 5428, for installations in caravans and boats.

The more recent editions have clearly identified mandatory performance requirements and non-mandatory (but recommended) means of compliance that satisfy these requirements, and so the gas regulations.

When the Gas (Safety and Measurement) Regulations 2010 were amended in November 2011, regulations referencing NZS 5261 and NZS 5428 were replaced by regulations calling up AS/NZS 5601.1 and AS/NZS 5601.2.

In NZ, NZS 5261 remains as an alternative expression of the performance requirements for imported installations until 31 December 2012. As legislative change has not yet been introduced in some Australian states, gasfitters there will still be working to AS 5601:2004.

“GASFITTERS IN NZ AND AUSTRALIA WILL BE WORKING TO THE SAME STANDARDS”

Why change?

The change has been introduced so gasfitters in NZ and Australia will be working to the same Standards. Under the Trans-Tasman Mutual Recognition Agreement, gasfitters' licences issued in one country have been accepted in the other, despite differences in legislation.

Until AS/NZS 5601:2010 was published, the Standard used by gasfitters in Australia did not identify the essential safety and performance requirements to be met by gas installations.

AS 5601:2004 was simply a mandatory means of compliance installations had to conform to unless otherwise approved by a state's technical regulator – but the regulator had no criteria against which to issue approvals. Therefore practices differed from state to state, and probably among different approvers in the same state.



To address this, the (Australia and NZ) Gas Technical Regulators Committee asked the joint gas installations Standards committee to develop a new version of AS 5601 based on the NZ Standards. Now, with common Standards, gasfitting will be done to the same performance requirements in both countries.

What's in the Standard?

AS 5601 covered all installations, irrespective of size and location, and included caravans and boats. In contrast, NZ has separate Standards for installations in buildings (NZS 5261) and those in caravans and boats (NZS 5428).

NZS 5261 had 3 parts in the same document. Part 1 contained performance requirements; Part 2 was a means of compliance for small installations; and Part 3 gave references for use as means of compliance for larger installations.

The new Standard adopts a mixed approach. It is in two separate documents (parts 1 and 2) based on NZS 5261 and NZS 5428. Part 1 is general installations, principally in buildings, and Part 2 is for LPG installations used for non-propulsive purposes in caravans and boats.

Both Parts have a similar structure. Section 1 – scope and general – sets out the aspects of gasfitting to which the Standard applies, explains the application of performance requirements and means of compliance and gives the interpretation of defined terms for both documents.

The Standard references a number of Australian Standards that must be used in Australia as part of the means of compliance, but this does not apply in NZ. Materials and fittings used here must all be fit for purpose, but need not conform to the Australian Standard and need not be certified. Any alternative Standard may be used.

Note also that the NZ Gas (Safety and Measurement) Regulations 2010 lift any limits related to gas supply pressure that may be stated in the AS/NZS 5601 (200 kPa in Part 1 and 3 kPa in Part 2). Those limits are embedded in Australian legislation, so had to be reflected in the Standard.

The performance requirements set out in Section 2 of Part 1 are virtually identical to those in Part 1 of NZS 5261. NZS 5428 never had explicit performance requirements, relying on

the more general requirements in NZS 5261. Section 2 of AS/NZS 5601 Part 2 has performance requirements with specific relevance to gasfitting in caravans and boats.

A notable addition to the performance requirements is in clause 2.4.2(e). This applies if a proprietary piping system is used for consumer piping. Reversion fittings must be installed so that, if there is a failure in the piping or an extension to the system is needed, it can be readily replaced or installed with conventional piping.

In both parts, Section 2 includes some limitations or prohibitions which, if contravened, would mean the mandatory safety requirements were unlikely to be satisfied.

Both parts include a number of appendices, some of which must be followed if the installation accords with the means of compliance. If the installation is being certified to the performance requirements rather than the means of compliance, these appendices are not mandatory, but may be used for guidance.

“ PIPE SIZING TABLES AND GRAPHS HAVE BEEN COMPLETELY RECALCULATED ”

Means of compliance in Part 1

Section 3 of AS/NZS 5601 Part 1 is based on clause 2.2 of NZS 5261. Some additional safety-related clauses have been added.

Section 4 is based on clause 2.3 of NZS 5261. Information on acceptable piping, fittings and jointing is now expressed in an extensive table (Table 4.1), and references to Standards have been updated where necessary; otherwise there are no significant changes to the requirements.

The early clauses of Section 5 are identical to those in NZS 5261. A notable addition is clause 5.2.13, which links to the performance requirement in clause 2.4.2(e) and details the location of reversion fittings.

Clauses 5.11 to 5.13 cover the same ground as clause 2.5 of NZS 5261.

Section 6 again mirrors the equivalent content of NZS 5261 (clause 2.6). Clauses have been added related to appliance accessibility, but these may be over-riden by any NZ occupational safety requirements. The requirements for installation of specific gas appliance types, in clause 2.7 of NZS 5261, are largely unchanged and appear as clause 6.10 in AS/NZS 5601.1.

Because of differences in the regulatory requirements, commissioning is covered by separate clauses for Australia and NZ.

Part 1 appendices

The table at the top of the next column compares the appendices in AS/NZS 5601.1 with the equivalent clause or appendix in NZS 5261. Other than Appendix F on pipe sizing, there has been little change in the content.

The pipe sizing tables and graphs have been completely recalculated and the basis of these calculations included. As a fitting allowance of 50 percent has been used, the Appendix may lead to oversizing of pipes, particularly with larger pipe sizes and runs with few fittings.

	AS/NZS 5601.1		NZS 5261
A	Conversion factors	A	Conversion factors
B	Referenced documents		see Related Documents, p13
C	Fire resistant material	M	Fire resistant material
D	Purging	C	Purging
E	Testing for gastightness	D	Pressure testing a gas installation
F	Sizing consumer piping	E	Pipe sizing
G	Determination of maximum breather vent orifice size		see clause 2.5.4.7
H	Flue design	F	Flue design
I	Appliances in outdoor areas		
J	LP gas cylinder locations	G	LPG cylinder locations
K	Gas in high-rise buildings		
L	Extracts from building codes of Australia and NZ		
M	Consumer billing meter installations	N	Typical clearance distances for a small GMS
N	Special requirements in Australian jurisdictions		

The following appendices of NZS 5261 do not appear in AS/NZS 5601.1, but may be added in an amendment being considered by the joint Standards committee AG-006.

B	Safe working practices
H	Guidelines for gas appliance commissioning
I	Large installation commissioning
J	Gas appliance maintenance
K	Large installation maintenance
L	Symbols used in gas control system diagrams

Means of compliance in Part 2

Section 3 of AS/NZS 5601.2 contains the information from both sections 3 and 4 of NZS 5428, with some supplementary requirements.

Sections 4 and 5 of AS/NZS 5601.2 are equivalent to sections 5 and 6 of NZS 5428.

Section 6 covers installation of gas appliances, generally as in section 7 of NZS 5428. The notable difference is with regard to water heaters, to which restrictions in clause 2.9.1(d) apply.

Sections 7, 8 and 9 are similar to the matching sections in NZS 5428, though some requirements have been made more explicit.

The appendices in AS/NZS 5601.2 repeat information in the appendices of AS/NZS 5601.1, but limiting the scope. ■



About the author: Dr Eric Palmer was previously technical manager for Master Plumbers. He has been a member of the NZS committee on gas installations and of the joint Standards committee AG-006 responsible for preparation of AS/NZS 5601. Since entering semi-retirement he continues on these committees and also offers consulting services to the industry, particularly in technical writing and Standards development.