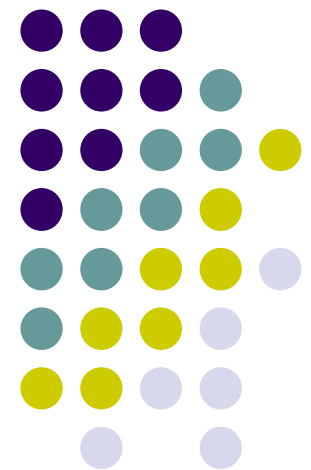


Gas New Zealand industry forum  
Wairakei – 19-21 October 2011

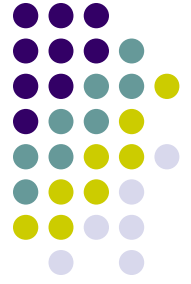
# An Update on Standards

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Gas appliances and installations



# Standards – important tools for the industry



- Upstream and downstream
- International, joint AS/NZS, and NZ only
- Cited in regulations or other legislative compliance documents



# Gas appliances

- NZS 5262:2003 +A1:2005 Gas appliance safety
- AS 3645:2010 Essential requirements for gas equipment
- NZS 5266(Int):2011 Safety of gas appliances
- NZS/AS 3645(Int):— Essential requirements for gas equipment
  - NZS/AS 3645.1:2011 Essential safety
  - NZS/AS 3645.2:2011 Certification

# Appliance Standards

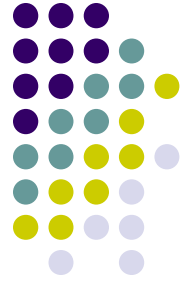




# Gas appliances

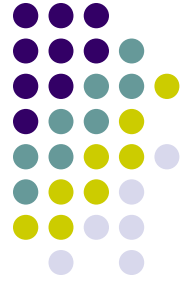
- **Essential requirements**
- NZS 5262 and AS 3645 based on performance requirements European Gas Appliance Directive
- Rational use of energy omitted from NZS 5262 – not a safety issue
  - see AS/NZS 4552.2:2010 for MEPS compliance for water heaters

# New Standards for gas appliances



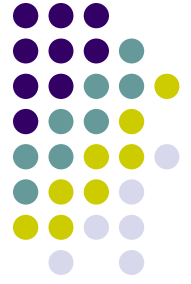
- Necessary for implementation of new certification scheme
- Facilitates closer alignment with Australia
- Ensures no technical barriers to trade for appliances from elsewhere

# NZS 5266(Int)



- replaces NZS 5262
- used by approved practitioners to endorse low-volume and specialist appliances
- retains all the technical requirements of NZS 5262

# General requirements

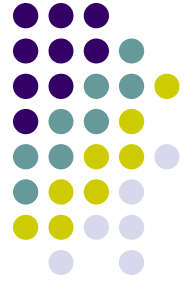


- Gas appliances shall be designed and built such that **all practical steps** are taken to ensure that, **under reasonably foreseeable circumstances**, persons, domestic animals or property are not exposed to hazards,
  - free from mechanical hazards
  - adequate stability and means of support, including seismic safety
  - no hazard from any gas leakage or dangerous accumulation of unburned gas during ignition, re-ignition and after flame extinction
  - safe temperatures of nearby combustible surfaces and of gas appliance controls
  - safe under New Zealand climatic conditions.
  - operate safely at all gas supply pressures within the range specified for the appliance.
  - remain safe up to the maximum overpressure specified by the manufacturer.
  - operate safely or shutdown safely if the supply voltage falls outside range of normal NZ supply or in the event of momentary voltage fluctuations, and comply with electrical safety legislation with regard to other electrical hazards



# Combustion requirements

- composition and discharge of combustion products from gas appliances present no health or fire hazard
  - CO from flueless appliances
- ignition and re-ignition reliable and complete
- burner cross-lighting assured
- no flame abnormality – flame lift, lightback, yellow tipping or sooting.
- operation shall not cause contamination or disruption of the gas supply



# Other requirements

- sufficiently durable to withstand the physical, chemical and thermal conditions
- fulfill correctly their intended purposes throughout the life of the gas appliance or components
- reasonably foreseeable failure of any component shall not lead to an unsafe situation
- accessible for maintenance for safety purposes
- installation and operating instructions
- marking — refer to the GSMR

# AS 3645:2010



- Essential requirements for gas equipment
  - based on performance requirements European Gas Directive
  - covers type A and B appliances and gas equipment for Australia
  - excludes gas equipment specifically designed for use in industrial processes
  - certification by a recognised body, or approval by technical regulator



# NZS/AS 3645(Int)

- Adopted version of AS 3645 — Essential requirements for gas equipment
- Part 1: Essential safety
  - retains Australian text for all sections
  - marked to show NZ and Australia clauses or paragraphs
- Part 2: Certification
  - NZ equivalent of AS 3645 section 3 and Appendix A
  - NZ certification scheme rules and compliance Standards



# NZS/AS 3645(Int)

- Country variations are shown by a tag and marginal bar

## PREFACE

### SPECIAL NATIONAL REQUIREMENTS

Certain provisions of the Standard have a different application in Australia and New Zealand. The following symbols appearing in the outer margin indicate that the identified Section or Clause is:

A
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 (a) Applicable in Australia only.

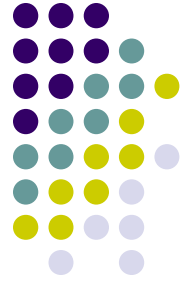
NZ
----

 (b) Applicable in New Zealand only.

NZ
----

 Gas safety requirements that are cited in the Gas (Safety and Measurement) Regulations apply equally to merchandise manufactured in New Zealand or imported. The regulations provide various routes by which the safety of appliances may be demonstrated.

# NZS/AS 3645(Int)



- **1.1.2 Exclusions**

Small production gas appliances and specialised gas appliances are excluded; these are covered by NZS 5266(Int).

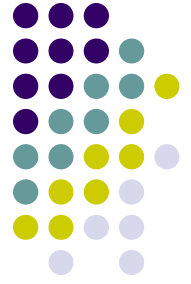


# NZS/AS 3645.2 (Int)

## 2.1 ASSESSMENT FOR CERTIFICATION

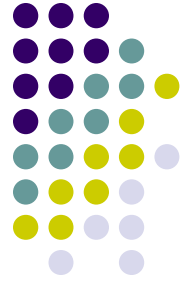
- A gas appliance that complies with the safety requirements of any one appropriate Standard listed in Appendix A of this Standard shall be deemed to comply with the performance requirements in NZS/AS 3645.1(Int) Section 2, subject to tests having been conducted using the test gases and gas pressures corresponding to the source of the Standard as in Table 1.
- The Standard from Appendix A that is used as the basis for determining compliance is referred to as the 'Compliance Standard'.
- The gas appliance shall be marked in accordance with 2.1.5 of NZS/AS 3645.1(Int), and the marking requirements of the Compliance Standard need not be met.

# NZS/AS 3645.2 (Int)



## 2.1 ASSESSMENT FOR CERTIFICATION

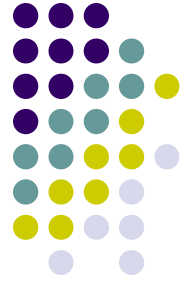
- Scheme Rules for the certification of gas appliances and specified fittings intended solely for sale in New Zealand are set out in Appendix C (New Zealand only).
- These rules apply only where the certifying body does not have scheme rules appropriate for use with this Standard.



# Qualitative not Quantitative

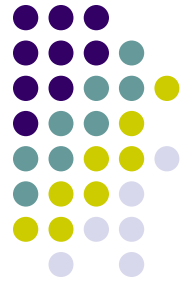
- NZS 5262, NZS 5266 and AS/NZS 3645 express qualitative requirements
- Quantitative requirements are expressed in compliance Standards

# Generic variations to compliance Standards



- **Instructions and markings** An English version of any necessary safety instructions and markings must be supplied
- **Australian Standards**  
For LPG appliances: ULPG only.  
Propylene testing and AS certification of components are not required
- **North American Standards**  
For LPG appliances: additional tests on butane  
For natural gas appliances: no additional requirements
- **European Standards**  
For LPG appliances: Group 3B/P gases  
For natural gas appliances: Group 2H gases

# Other variations to compliance Standards



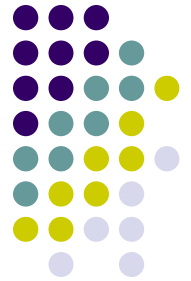
- Specific exemptions are listed for various Standards
- Examples:
  - AS 4553 requirements relating to fire guards removed
  - AS 4557 – NZ requirements for LPG regulators substituted

# Certification regimes or bodies



- Australian Gas Association
- SAI Global Certification Services Pty Ltd
- IAPMO R&T Oceana Pty Ltd
  
- Canadian Standards Association
- Underwriters Laboratories
  
- EU directive 2009/142/EC (or 90/396/ECC until 1 July 2013)

# Gas (Safety and Measurement) Regulations



- Label of certifying body or
- Gas safety compliance label (GSMR schedule 6)



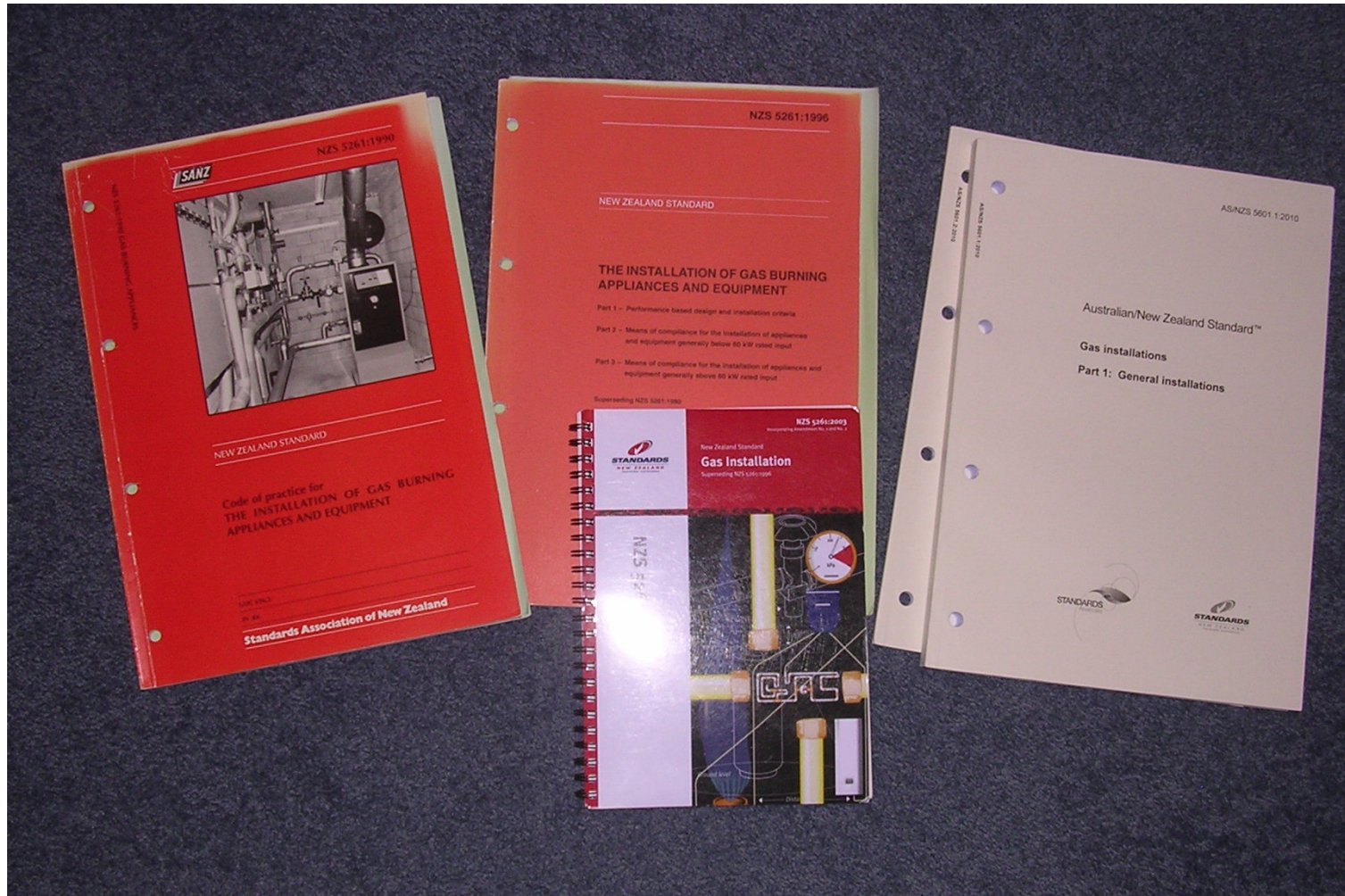


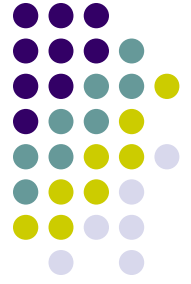
# Interim Standards

- Standards New Zealand invites comment on Interim Standards in the twelve months following publication
- The Interim Standard will then be confirmed, withdrawn, or revised in the light of comments received



# Installation Standards

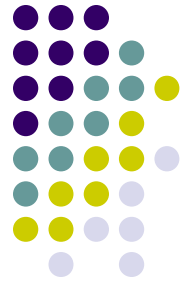




# Gas installations

- NZS 5261 Gas installation
- NZS 5428 LPG installations for non-propulsive purposes in caravans and boats
- AS/NZS 5601 Gas installations
  - Part 1: General installations
  - Part 2: LP Gas installations in caravans and boats for non-propulsive purposes
- NZS 5255 Safety verification of existing gas installations

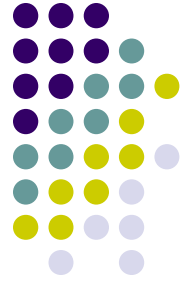
# Gas (Safety and Measurement) Regulations



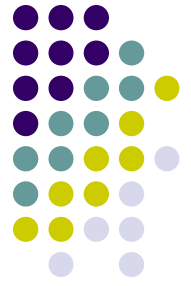
- R.43(1)

Every persons who designs, installs or tests a gas installation must do so in accordance with AS/NZS 5601.1 or AS/NZS 5601.2

# AS/NZS 5601



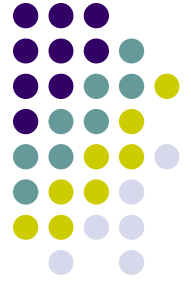
- Two Parts
  - Part 1: General installations
  - Part 2: LP Gas installations in caravans and boats for non-propulsive purposes
- Based on NZS 5261 and NZS 5428
- Performance requirements and means of compliance
- No significant technical changes



# Certification of installations

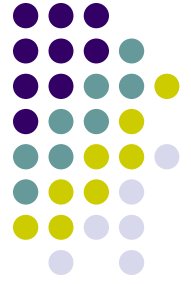
- GSMR removes pressure limitations in AS/NZS 5601.1 (200 kPa) and AS/NZS 5601.2 (3 kPa) making these suitable Standards for certification
- No changes in certification requirements in current amendment to GSMR

# Comparison AS/NZS 5601.1 and NZS 5261



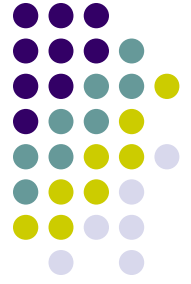
- Pipe sizing
  - recalculated – assumptions explicit
  - both tabular and graphical method presented
- Flue design from AS 5601
- Gas in high rise building – new informative appendix
- Appendices H – O of NZS 5261 omitted (commissioning, maintenance and checklist)

# Comparison AS/NZS 5601.2 and NZS 5428



- Performance requirements explicit  
(not relying on those in Part 1 or NZS 5261)
- Technical requirements clarified





# NZS 5255

## **NZS 5255(Int):2011** Safety verification of existing gas installations

- provides a consistent procedure for assessing and reporting the condition of installations, particularly any not certified at time of original work
- provides specific information for assessing the safety of existing gas installations, including checklists and appropriate means of achieving and demonstrating compliance
- suitable for citation in the Gas (Safety and Measurement) Regulations