Department of
Building and Housing
Te Tari Kaupapa Whare

Dear Customer

Please find enclosed Amendment 6, effective 10 October 2011, to the Compliance Document for Clause G10 Piped Services of the New Zealand Building Code.

Section	**Old G10**	**October 2011 Amendments to G10**
Title pages	Remove title page and document history	Replace with new title page and document history
References	Remove pages 7-10	Replace with new pages 7-10
G10/AS1	Remove page 15/16	Replace with new page 15/16

ARCHIVED

Compliance Document for New Zealand Building Code Clause G10 Piped Services

Prepared by the Department of Building and Housing

This Compliance Document is prepared by the Department of Building and Housing. The Department of Building and Housing is a Government Department established under the State Sector Act 1988.

Enquiries about the content of this document should be directed to:

Department of
Building and Housing
Te Tari Kaupapa Whare

Department of Building and Housing
PO Box 10-729, Wellington.
Telephone 0800 242 243
Fax 04 494 0290
Email: info@dbh.govt.nz

Compliance Documents are available from www.dbh.govt.nz

New Zealand Government

Status of Compliance Documents

Compliance Documents are prepared by the Department of Building and Housing in accordance with section 22 of the Building Act 2004. A Compliance Document is for use in establishing compliance with the New Zealand Building Code.

A person who complies with a Compliance Document will be treated as having complied with the provisions of the Building Code to which the Compliance Document relates. However, a Compliance Document is only one method of complying with the Building Code. There may be alternative ways to comply.

Users should make themselves familiar with the preface to the New Zealand Building Code Handbook, which describes the status of Compliance Documents and explains alternative methods of achieving compliance.

Defined words (italicised in the text) and classified uses are explained in Clauses A1 and A2 of the Building Code and in the Definitions at the start of this Compliance Document.

G10: Document History

	Date	Alterations	
First published	July 1992		
Amendment 1	September 1993	pp. vi–vii, References p. 3, 1.0.1 p. 4, Table 1	p. 7, 2.0.1 b) p. 10, Index
Amendment 2	1 December 1995	pp. i and ii, Document History	p. vi–viii, References
Reprinted incorporating Amendments 1 & 2	April 1996		
Amendment 3	28 February 1998	p. ii, Document History p. vii, References	p. 8, 5.0.1
Amendment 4	23 June 2007	p. 2, Document History, Status p. 8, References p. 11, Definitions	p. 13, VM1 1.0.1 p. 20, AS1 5.0, 5.0.1 p. 21, Index
Amendment 5	Published 30 June 2010 Effective from 30 September 2010	p. 2, Document History, Status p. 5, Contents pp. 7–8, References	p. 15, G10/AS1 1.0.1 p. 16, G10/AS1 Table 1 p. 17, G10/AS1 1.3.1
Reprinted incorporating Amendments 3–5	30 September 2010		
Amendment 6	10 October 2011	p. 2, Document History, Status pp. 7–10, References	p. 16, G10/AS1 Table 1

Note: Page numbers relate to the document at the time of Amendment and may not match page numbers in current document.

Document Status

The most recent version of this document, as detailed in the Document History, is approved by the Chief Executive of the Department of Building and Housing. It is effective from 10 October 2011 and supersedes all previous versions of this document.

People using this Compliance Document should check for amendments on a regular basis. The Department of Building and Housing may amend any part of any Compliance Document at any time. Up-to-date versions of Compliance Documents are available from www.dbh.govt.nz

References

For the purposes of New Zealand Building Code (NZBC) compliance, the Standards and documents referenced in this Compliance Document (primary reference documents) must be the editions, along with their specific amendments, listed below. Where these primary reference documents refer to other Standards or documents (secondary reference documents), which in turn may also refer to other Standards or documents, and so on (lower-order reference documents), then the version in effect at the date of publication of this Compliance Document must be used.

Amend 6 Oct 2011

		Where quoted
Standards New Zealand		
NZS/BS 21: 1985	Specification for pipe threads for tubes and fittings where pressure-tight joints are made on the threads (metric dimensions) *Amend: 1*	AS1 Table 1
AS/NZS 1170:	Structural design actions	AS1 1.0.1 a)
Part 0: 2002	General principles *Amends: 1, 2, 4*	
Part 1: 2002	Permanent, imposed and other actions *Amend: 1*	
Part 2: 2002	Wind actions *Amend: 1*	
Part 3: 2003	Snow and ice actions *Amend: 1*	
NZS 1170:		
Part 5: 2004	Earthquake design actions – New Zealand	AS1 1.0.1 a)
NZS/BS 1387: 1985 (1990)	Specification for screwed and socketed steel tubes and tubulars and for plain end steel tubes suitable for welding or screwing to BS 21 pipe threads *Amend: 1*	AS1 Table 1
NZS 3501: 1976	Specification for copper tubes for water, gas, and sanitation *Amends: 1, 2, 3*	AS1 Table 1
NZS 3502: 1976	Specification for copper and copper alloy tubes for general engineering purposes	AS1 Table 1
NZS/BS 3601: 1987 (1993)	Specification for carbon steel pipes and tubes with specified room temperature properties for pressure purposes	AS1 Table 1

Amend 5 Sep 2010

Amend 6 Oct 2011

Amend 2 Dec 1995

Amend 5 Sep 2010

Amend 6 Oct 2011

Amend 2 Dec 1995

			Where quoted	
Amend 5 Sep 2010	NZS 4219: 1983	Specification for seismic resistance of engineering systems in buildings *Amend: 1, 2*	AS1 1.0.1 a)	
Amend 5 Sep 2010	AS/NZS 4331 Part 1: 1995 Part 2: 1995	Metallic flanges Steel flanges Cast iron flanges	AS1 Table 1	
Amend 4 Jun 2007 Amend 5 Sep 2010	NZS 5261: 2003	Gas installation *Amend: 1, 2*	VM1 1.0.1, AS1 5.0.1	Amend 2 Dec 1995 Amends 1 and 3
	NZS 5807:-	Code of practice for industrial identification by colour, wording or other coding		
Amend 6 Oct 2011	Part 2: 1980	Identification of contents of piping, conduit and ducts *Amend: 1, 2*	AS1 1.0.1	Amend 1 Sep 1993
	NZS 7646: 1978	Specification for polyethylene pipes and fittings for gas reticulation	AS1 Table 1	
	British Standards Institution			
Amend 6 Oct 2011	BS 10: 2009	Specification for flanges and bolting for pipe, valves and fittings	AS1 Table 1	
	BS 143 and 1256: 2000	Specification for malleable cast iron and cast copper alloy threaded pipe fittings *Amend: 1, 2, 3, 4*	AS1 Table 1	
Amend 5 Sep 2010	BS EN 1044:1999	Brazing. Filler metals	AS1 Table 1	
	BS EN 10253-3: 2007	Butt-welding pipe fittings – non-alloy and ferric alloy steels with specific inspection requirements.	AS1 Table 1	
Amend 6 Oct 2011	BS EN 10253-3: 2008	Butt-welding pipe fittings – wrought austenitic and austenitic-ferritic (duplex) stainless steels without specific inspection requirements.	AS1 Table 1	Amend 1 Sep 1993
Amend 5 Sep 2010	BS 2971: 1991	Specification for Class II arc welding of carbon steel pipework for carrying fluids	AS1 1.3.1 a), Table 1	
	BS 3799: 1974 (1994)	Specification for steel pipe fittings, screwed and socket-welding for the petroleum industry	AS1 Table 1	Amend 2 Dec 1995
	BS EN 10241: 2000	Steel threaded pipe fittings	AS1 Table 1	
Amend 5 Sep 2010	BS EN 14324:2004	Brazing. Guidance on the application of brazed joints	AS1 Table 1	

			Where quoted	
	Standards Association of Australia			
	AS D26: 1972	Tube fittings with dryseal American standard taper pipe and unified threads for automotive and industrial use	AS1 Table 1	
	AS 1167:-	Welding and brazing – Filler metals		
	Part 1: 2005	Filler metal for brazing and braze welding	AS1 Table 1	Amend 2 Dec 1995
	AS 1432: 2004	Copper tubes for plumbing, gasfitting and drainage applications	AS1 Table 1	
Amend 5 Sep 2010	AS 3688: 2005	Water supply – Copper and copper alloy compression and capillary fittings and threaded connectors	AS1 Table 1	Amend 2 Dec 1995
Amend 6 Oct 2011		*Amend: 1*		
	American Society for Testing and Materials			
	ASTM			
	A53-90	Specification for pipe, steel, black and hot-dipped, zinc-coated welded and seamless	AS1 Table 1	
	A106-91	Specification for seamless carbon steel pipe for high temperature service	AS1 Table 1	
	American National Standards Institute and American Society of Mechanical Engineers			
	ANSI/ASME			
	B16.1-1989	Cast iron pipe flanges and flanged fittings, Class 25, 125, 250 and 800	AS1 Table 1	
	B16.3-1985	Malleable-iron threaded fittings, Classes 150 and 300	AS1 Table 1	
	B16.5-1988	Pipe flanges and flanged fittings, steel-nickel alloy and other special alloys	AS1 Table 1	
	B16.9-1990	Factory-made wrought steel butt-welding fittings	AS1 Table 1	
	ANSI			
	B16.11-1980	Forged steel fittings, socket-welding and threaded	AS1 Table 1	
	American Petroleum Institute			
	API SPEC 5L-1991	Specification for line pipe	AS1 Table 1	
	API STD 1104-1988	Welding of pipelines and related facilities	AS1 1.3.1 b), Table 1	

Acceptable Solution G10/AS1

It is intended that the New Zealand Building Code will in due course provide acceptable solutions for piping a range of fluids and solids. This acceptable solution is restricted to the reticulation of gas (typically natural or *town gas*), used as an energy source.

For water supply piping, an acceptable solution is given in G12/AS1.

Piping for Gas used as an Energy Source

1.0 Pipework Construction

Amend 5 Sep 2010

1.0.1 Pipework installed in *buildings* shall:

a) Be designed in accordance with AS/NZS 1170, and comply with the seismic design and installation requirements of NZS 4219,

b) Use materials and jointing techniques complying with Table 1,

c) Have no plain nipples, square back elbows or long screws, and

d) Have metal (including spirally wound metal) gaskets with a minimum melting point of 500°C.

Amend 1 Sep 1993

COMMENT:
Pipework can be identified using the marking conventions given by NZS 5807.

1.1 Drainage and cleaning provisions

1.1.1 Where condensates can form in a pipeline, they shall be removed by grading the pipe with a fall of 4 mm per metre towards a *tailpipe* (drip), located at the piping low point nearest the outlet side of the meter.

1.1.2 If this is impractical, a single *tailpipe* may be provided at the lowest point in the pipeline, which shall have a fall to that point.

1.1.3 Tailpipes

Tailpipes shall be:

a) Constructed to provide:

i) ready access for cleaning and draining,

ii) a trap which on filling will shut off the flow of gas before the condensate can run back to the meter, and

iii) protection from frost,

b) Of sufficient capacity for:

i) the pipes draining into them, and

ii) the amount of condensate likely to occur, and

c) Installed with a suitable control fitting and plug to allow removal of condensate if the *tailpipe* is below ground.

1.2 Pipework installation

1.2.1 A pipework installation shall have:

a) Pipes supported in accordance with Table 2,

b) Pipes separated (by at least 25 mm) from any metallic electrical conduit, or metal armoured or metal sheathed electrical wire,

c) Pipe risers which are:

i) supported by anchors and attachments which are capable of supporting the total weight of the riser and allow for differential expansion,

ii) sleeved through floors,

iii) not jointed at sleeve locations, and

d) Pipe bends and offsets which:

i) are constructed without buckling, cracks, or physical damage, and

ii) give at least the gas-carrying capacity of a standard fitting, and

e) No piping laid on the ground.

Amend 1 Sep 1993

Table 1: Acceptable Standards for Piping Systems
Paragraph 1.0.1 b)

Material	Acceptable piping	Acceptable fittings	Acceptable jointing	Special conditions
Steel	Steel pipe to NZS/BS 1387, NZS/BS 3601, ASTM A53, ASTM A106 or API 5L.	Screwed pipe fittings, malleable cast iron to BS 143 and 1256 or ANSI B16.3. Wrought steel to BS EN 10241, or ANSI B16.11.	Screwing/socketing to NZS/BS 21.	1. Black pipe: i) is not permitted below ground unless protected. (Galvanising is not sufficient protection.) ii) is not permitted with wet gas. iii) shall be painted or suitably coated when installed above ground.
		Socket-welding pipe fittings, sockets to NZS/BS 3799 or ANSI B16.11.	Welding to BS 2971 or API 1104.	
		Butt-welding fittings to BS EN 10253-2, BS EN 10253-3 or ANSI B16.9.		2. All joints in locations below ground shall be externally protected against corrosion.
		Flanges to BS 10, AS/NZS 4331		3. Welding shall be by welders certified in accordance with API 1104.
		ANSI B16.1 and B16.5.		4. Flanged joints may only be used when other jointing methods are impracticable.
Copper	Copper tube to NZS 3501, NZS 3502 or AS 1432.	Copper tube expanded with proper forming tools to provide capillary tolerances.	Brazing in accordance with BS EN 14324 using copper-phosphorous brazing alloy to AS 1167-1 or BS EN 1044, with a nominal silver content of not less than 5% and a melting point in excess of 550°C.	1. Not for installation below ground, unless in protective ducting.
		Copper and copper alloy capillary fittings to AS 3688.		
		Copper alloy compression fittings to AS 3688 or AS D26.	Flares formed with proprietary flaring tools.	
Plastic	Polyethylene to NZS 7646.	Fittings to NZS 7646.		Below ground use only.