Dear Customer

Please find enclosed Amendment 5, effective 14 February 2014, to the Acceptable Solutions and Verification Methods for Clause G13 Foul Water of the New Zealand Building Code. The previous amendment to G13 (Amendment 4) was in October 2011.

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Acceptable Solutions and Verification Methods

For New Zealand Building Code Clause

G13 Foul Water

Second Edition
Status of Verification Methods and Acceptable Solutions

Verification Methods and Acceptable Solutions are prepared by the Ministry of Business, Innovation and Employment in accordance with section 22 of the Building Act 2004. Verification Methods and Acceptable Solutions are for use in establishing compliance with the New Zealand Building Code.

A person who complies with a Verification Method or Acceptable Solution will be treated as having complied with the provisions of the Building Code to which the Verification Method or Acceptable Solution relates. However, using a Verification Method or Acceptable Solution 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 Verification Methods and Acceptable Solutions 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 document.

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

MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT

New Zealand Government

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Document Status

The most recent version of this document (Amendment 5), as detailed in the Document History, is approved by the Chief Executive of the Ministry of Business, Innovation and Employment. It is effective from 14 February 2014 and supersedes all previous versions of this document.

The previous version of this document (Amendment 4) will cease to have effect on 14 August 2014.

People using this document should check for amendments on a regular basis. The Ministry of Business, Innovation and Employment may amend any part of any Verification Method or Acceptable Solution at any time. Up-to-date versions of Verification Methods and Acceptable Solutions are available from www.dbh.govt.nz

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Note: Page numbers relate to the document at the time of Amendment and may not match page numbers in current document.
For the purposes of New Zealand Building Code (NZBC) compliance, the Standards and documents referenced in these Verification Methods and Acceptable Solutions (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 these Verification Methods and Acceptable Solutions must be used.

### Standards New Zealand

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<td>NZS 4442: 1988</td>
<td>Welded steel pipes and fittings for water, sewage and medium pressure gas</td>
<td>AS2 Table 1</td>
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### British Standards Institution

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<th>BS 437: 2008</th>
<th>Specification for cast iron drain pipes, fittings and their joints for socketed and socketless systems</th>
<th>AS2 Table 1</th>
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<td>BS EN 12056-2:2000</td>
<td>Gravity drainage systems inside buildings. Sanitary pipework, layout and calculation</td>
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### Standards Australia

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<th>AS 1579: 2001</th>
<th>Arc welded steel pipes and fittings for water and waste water</th>
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<td>Plastic piping systems – Glass reinforced thermoplastics (GRP) systems based on unsaturated polyester (UP) resin – pressure and non-pressure drainage and sewerage (ISO 10467: 2004 MOD)</td>
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AS 4139: 2003 Fibre reinforced concrete pipes and fittings

**Australian/New Zealand Standards**

AS/NZS 1260: 2009 PVC-U pipes and fittings for drain, waste and vent applications

**Amend: 1**

AS/NZS 1547: 2012 On-site domestic wastewater management

AS/NZS 2032: 2006 Installation of PVC pipe systems

**Amend: 1**

AS/NZS 2033: 2008 Installation of polyethylene pipe systems

**Amend: 1, 2**

AS/NZS 2280: 2012 Ductile iron pipes and fittings

AS/NZS 2566.2: 2002 Buried flexible pipelines installation

AS/NZS 3500- Part 2: 2003 Sanitary plumbing and drainage

**Amend: 1, 2, 3, 4**

AS/NZS 3500:- Part 2: 2003 Sanitary plumbing and drainage

**Amend: 1**

AS/NZS 3518: 2004 Acrylonitrile butadiene styrene (ABS) compounds, pipes and fittings for pressure applications

**Amend: 1**

AS/NZS 4058: 2007 Pre cast concrete pipes (pressure and non pressure)

AS/NZS 4130: 2009 Polyethylene (PE) pipe for pressure applications

**Amend: 1**

AS/NZS 4401: 2006 High density polyethylene (PE-HD) pipes and fittings for soil and waste discharge (low and high temperature) systems inside buildings

AS/NZS 4936: 2002 Air Admittance valves for use in sanitary plumbing and drainage systems.

AS/NZS 5065: 2005 Polyethylene and polypropylene pipe and fittings for drainage and sewerage applications

**Amend: 1**

**European Standards**

EN 12380: 1999 Air admittance valves for drainage systems – Requirements and test methods

**American Society of Sanitary Engineers**

ASSE 1050: 1991 Performance requirements for air admittance valves 1for plumbing DWV systems stack type devices

ASSE 1051: 1992 Performance requirements for air admittance valves for plumbing drainage systems

**Amend 1 Jun 2007**

**Amend 2 and 5 Sep 2010**

**Amend 4 Oct 2011**

**Where quoted**

AS2 Table 1

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VM4 1.1.2

AS1 6.1.1, 6.2.2, 6.3.1, 7.1.2

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AS1 5.8.2, Table 1
Definitions

This is an abbreviated list of definitions for the words or terms particularly relevant to these Verification Methods and Acceptable Solutions. The definitions for any other italicised words may be found in the New Zealand Building Code Handbook.

Access chamber A chamber with working space at drain level through which the drain passes either as an open channel or as a pipe incorporating an inspection point.

Access point A place where access may be made to a drain or discharge pipe for inspection, cleaning or maintenance; and may include a cleaning eye, inspection point, rodding point, inspection chamber or access chamber.

Adequate Adequate to achieve the objectives of the building code.

Air admittance valve A valve that allows air to enter but not to escape in order to limit pressure fluctuations within the sanitary plumbing or drainage system.

Branch discharge pipe A discharge pipe that serves one or more fixture discharge pipes for any one floor.

Branch vent pipe A vent pipe that serves two or more fixture vent pipes.

Building has the meaning ascribed to it by Sections 8 and 9 of the Building Act 2004.

Cleaning eye A small diameter access point usually formed as part of a fitting or trap.

Combined waste pipe A discharge pipe which serves two or more waste pipes.

Developed length The total length along the centre line of a pipe including fittings and bends.

Diameter (or bore) The nominal internal diameter.

Discharge pipe Any pipe that is intended to convey discharge from sanitary fixtures or sanitary appliances.

Discharge stack A discharge pipe that has one or more discharge pipe connections, and which is vented at one end via a discharge stack vent.

Discharge stack vent A vent pipe connected to the top of the discharge stack.

Discharge unit The unit of measure for the discharge (hydraulic load) in the plumbing system, and is based on the rate, duration and frequency of discharge from a sanitary fixture or sanitary appliance.

Drain A pipe normally laid below ground level including fittings and equipment and intended to convey foul water or surface water to an outfall.

Drain vent pipe Any pipe which is intended to permit the movement of air into and out of the drain and sewer.

Fixture An article intended to remain permanently attached to and form part of a building.

Fixture discharge pipe A discharge pipe that is used to convey waste from a single sanitary fixture or sanitary appliance to a branch discharge pipe, a discharge stack, or directly to a drain. It does not include any pipes forming part of a sanitary appliance.

Fixture vent pipe (trap vent) A vent pipe that is connected to a fixture discharge pipe or the sanitary fixture itself.

Floor waste An outlet located at the low point of a graded floor or in a level floor designed to receive accidental or intentional discharges.

Floor waste pipe A pipe that receives the discharge from a floor waste and that discharges outside the building or to the foul water drainage or sanitary plumbing system.

Foul water The discharge from any sanitary fixture or sanitary appliance.

Foul water drainage system Drains, joints and fittings normally laid underground and used specifically for the conveyance of water from the plumbing system to an outfall.

Grease trap A device designed to intercept grease in a foul water discharge.
Gully trap A fitting designed to prevent foul air escaping from the drainage system and used to receive the discharge from waste pipes.

Inspection chamber A chamber with working space at ground level through which the drain passes either as an open channel or as a pipe incorporating an inspection point.

Inspection point A removable cap at drain level through which access may be made for cleaning and inspecting the drainage system.

Network utility operator means a person who—

a) undertakes or proposes to undertake the distribution or transmission by pipeline of natural or manufactured gas, petroleum, biofuel, or geothermal energy; or

b) operates or proposes to operate a network for the purpose of—

i) telecommunication as defined in section 5 of the Telecommunications Act 2001; or

ii) radiocommunications as defined in section 2(1) of the Radiocommunications Act 1989; or

c) is an electricity operator or electricity distributor as defined in section 2 of the Electricity Act 1992 for the purpose of line function services as defined in that section; or

d) undertakes or proposes to undertake the distribution of water for supply (including irrigation); or

e) undertakes or proposes to undertake a drainage or sewerage system.

Outfall That part of the disposal system receiving surface water or foul water from the drainage system. For foul water, the outfall may include a sewer or a septic tank. For surface water, the outfall may include a natural water course, kerb and channel, or soakage system.

Plumbing system Pipes, joints and fittings, laid above ground and used for the conveyance of foul water to the foul water drain and includes vent pipes.

Relief vent A vent pipe which is connected to a discharge stack below the lowest branch connection and which connects at its upper end to the discharge stack vent or terminates as an open vent.

Roddling point A removable cap at ground level through which access may be made for cleaning and inspecting the drainage system.

Sanitary appliance An appliance which is intended to be used for sanitation and which is not a sanitary fixture. Included are machines for washing dishes and clothes.

Sanitary fixture Any fixture which is intended to be used for sanitation.

Sanitation The term used to describe the activities of washing and/or excretion carried out in a manner or condition, such that the effect on health is minimised, with regard to dirt, contamination and infection.

Sewer A drain that is under the control of, or maintained by, a network utility operator.

Soil fixture A sanitary fixture constructed to receive solid and/or liquid excreted human waste. It includes bedpan disposal units, slop sinks, urinals, water closet pans, and water-flushed sanitary towel disposal units.

Surface water All naturally occurring water, other than sub-surface water, which results from rainfall on the site or water flowing onto the site, including that flowing from a drain, stream, river, lake or sea.

Vent pipe A pipe for the purpose of protecting water seals that at its upper end is either open to the atmosphere or fitted with an air admittance valve and that at its lower end is connected to a discharge pipe.

Waste pipe A discharge pipe that conveys the discharge from waste water fixtures to a gully trap.

Waste water fixture A sanitary fixture or sanitary appliance used to receive wastes, and which is not a soil fixture.

Water seal The depth of water that can be retained in a water trap.

Water trap A fitting designed to retain a depth of water that prevents foul air and gases escaping from the plumbing system or foul water drainage system and entering a building.
Verification Method G13/VM2

Drainage

1.0 Drainage

1.0.1 No specific methods have been adopted for verifying compliance with the Performance of NZBC G13.

COMMENT:
AS/NZS 3500.2 is referenced in G13/AS3.
Figure 5: Position of drain vent pipe
Paragraphs 4.1.3, 4.1.4 and 4.1.5

(a) Drain vent pipe

(b) Discharge stack used to ventilate drain
5.5 Placing and compacting
5.5.1 Base bedding (beneath the pipe) shall be placed and compacted before pipes are laid.
5.5.2 Side bedding (along both sides of the pipe) and cover bedding (where used) up to 300 mm above the pipe, shall be compacted.

5.6 Proximity of trench to building
5.6.1 For light timber framed and concrete masonry buildings constructed to NZS 3604 or NZS 4229 in accordance with B1/AS1 pipe trenches which are open for no longer than 48 hours shall be located no closer than V to the underside of any building foundation, as shown in Figure 8. Where the trench is to remain open for periods longer than 48 hours the minimum horizontal separation shall increase to 3V in all ground except rock.

5.7 Access points
5.7.1 Except in accordance with Paragraphs 5.8 and 5.9, all drains shall be laid to allow easy access for maintenance and the clearance of blockages.
5.7.2 Drains shall be provided with access points to facilitate cleaning and the clearance of blockages. Such access points shall be constructed to prevent the ingress of ground water and tree roots.
5.7.3 Access points may comprise access chambers, inspection chambers, rodding points or inspection points. Methods of access point construction are shown in Figures 9 to 12.

COMMENT:
Roddng points are preferred to inspection points in landscaped or sealed areas and within buildings.
Acceptable Solution G13/AS3
Plumbing and drainage

1.0 Installation of PVC-U pipe

1.0.1 AS/NZS 2032 is an Acceptable Solution for the installation of PVC-U pipe and fittings, but may exceed the performance criteria of NZBC G13.

1.0.2 AS/NZS 3500.2
AS/NZS 3500.2, Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 13, as modified by Paragraph 1.0.3, is an Acceptable Solution for plumbing and drainage.

1.0.3 Modifications to AS/NZS 3500.2

Clause 2.2 Delete and replace with “Materials and products shall comply with NZBC B2 and G13/AS1 Paragraph 2.0 Materials”.

Clause 2.8.7 Delete clause.

Clause 3.5.1 (d) Delete and replace with “Drains shall not be installed in water courses”.

Clause 3.16 Delete “(a) Mortar jointed vitrified clay pipes shall not be re-used”.

Section 3.19 Delete section.

Section 4.4 Replace “inspection shafts” with “access point” in this section.

Clause 4.6.6.1 This applies only to Housing.

Clause 4.8.3 Delete and replace with “Access and inspection chambers shall be as required by G13/AS2.”

Clause 5.6 Delete and replace with “Drains in other than stable ground shall be subject to specific design.”

Clause 11.2 Replace “AS 1428” with “NZBC G1 or NZS 4121”.

Clause 11.3.7 Replace “AS/NZS 3500.1” with “G12/AS1 or AS/NZS 3500.1”.

Amend 1 Jun 2007
Amend 3 Sep 2010
Amend 5 Feb 2014
Verification Method G13/VM4
Foul Water: On-Site Disposal

1.0 General

1.1 Scope

1.1.1 This document describes the design methods for systems used for the collection, storage, treatment and disposal of foul water.

1.1.2 A design method and construction details given in sections 5.1 to 5.5 and 6.1 to 6.2 of AS/NZS 1547 (and the appendices referred to in these sections), for the treatment of domestic foul water for flow rates up to a maximum 14,000 litres/week from a population equivalent of up to 10 persons, may be verified as satisfying the performance criteria of G13 Foul Water.