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New Zealand Backflow Testing Standard 2019

Field testing of backflow prevention devices and verification of air gaps

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COMMITTEE REPRESENTATION:

This document was prepared by a committee convened by the Water New Zealand and Master Plumbers, Gasfitters and Drainlayers NZ Inc with representatives from plumbing practitioners, plumbing product suppliers, water suppliers and regulatory agencies.

- Water NZ Backflow Committee
- Master Plumbers
- Ministry of Business Innovation and Employment
- Fire Protection Association

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REFERENCED DOCUMENTS

Reference is made in this document to the following:

JOINT AUSTRALIAN/NEW ZEALAND STANDARDS

AS/NZS 3500: Plumbing and Drainage

- Part 0: Glossary of terms
- Part 1: Water Supply

AS/NZS 2865: Safe working in a confined space

AS/NZS 2845:

- Part 1 Materials design and performance requirements

AUSTRALIAN STANDARDS

AS 2845: Water supply – backflow prevention devices

- Part 2: Registered air gaps and registered break tanks
- Part 3: Field testing and maintenance of testable devices

OTHER PUBLICATIONS

Ministry of Business Innovation and Employment - New Zealand Building Code

Water New Zealand Backflow Code of Practice 2nd edition June 2013

LEGISLATION

Building Act 2004

Health Act 1956 (including Drinking Water Amendment Act 2007)

Health and Safety at Work Act 2015

Plumbers, Gasfitters and Drainlayers Act 2006

Resource Management Act and subsequent amendments

LATEST REVISIONS

The users of this document should ensure that their copies of the above-mentioned reference documents are the latest revisions. Amendments to referenced New Zealand and Joint Australian/New Zealand Standards can be found on www.standards.govt.nz.

FOREWORD

This industry standard was developed as a replacement for AS 2845 *Water supply – backflow prevention devices*, Part 2 *Registered air gaps and registered break tanks* and Part 3 *Field testing and maintenance of testable devices*. It is more suitable for use in New Zealand as it reflects the regulatory environment and the procedures currently in use.

This document covers the testing of backflow prevention devices and verification of air gaps. In relation to maintenance, repairs should be undertaken immediately a device is known to have failed. During repairs the same level of protection must be maintained, or the affected section water supply system shut down.

Repairs to devices that are covered under the Building Act should be carried out only by persons licensed or authorized under the Plumbers, Gasfitters and Drainlayers Act.

Repairs to devices that are covered under the Health Act (s69ZZZ) should be carried out only by persons authorized by the water supply authority.

The procedures in this document for testing backflow prevention devices will help ensure uniformity of practice and reliability of testing and so will provide improved protection of public health from potential contamination of water supplies through cross-connections and backflow.

1. GENERAL

1.1 Scope

This standard specifies requirements for field testing of backflow prevention devices and verification of air gaps following completion of installation and at subsequent intervals demanded by regulatory requirements.

1.2 Application

This standard applies to backflow prevention devices installed to comply with the requirements of the New Zealand Building Code, the Health Act and the Resource Management Act.

1.3 Interpretation

For the purposes of compliance with this standard the word '*shall*' refers to practices that are mandatory. The word '*should*' refers to good industry practices that are advised or recommended.

Notes are for information and guidance only.

This standard contains two types of appendices. A '*normative*' appendix forms an integral part of the standard. An '*informative*' appendix is for information and guidance only.

1.4 Definitions

For the purposes of this standard, definitions in AS/NZS 3500.0 and the NZ Building Code Clause G12 Water Supplies) apply, in particular the following:

Air gap	The vertical distance through air between the lowest point of the water supply outlet and the flood level rim of the equipment or the fixture into which the outlet discharges.
Point of Supply	The point where ownership changes from the network supplier to the customer.
Pipe Diameter	The internal diameter of the water pipe discharging into the fixture or receptacle.
Spill Level	The maximum height to which water will rise, while overflowing the rim level or through channels or openings having a free discharge to the atmosphere under all conditions, when water is flowing into the fixture or receptacle at the maximum rate with all service outlets closed.
Toxic Environment	An environment that contains contaminants that can contaminate the water supply in concentrations great than those included in the New Zealand Drinking Water Standard 1995.
Water supply authority	The network utility operator responsible for drinking water supply, defined as "networked supplier" under the Health Act.

2. AIR GAPS

2.1 Verification Criterion

2.1.1 Minimum airgap

Air gap dimensions shall comply with the minimum air gap separation and shall be the greater of 25 mm or twice the inlet pipe diameter, or shall be as calculated from Appendix B.

2.1.2 Multiple Inlets

Where any fixture, tank, or receptacle receives water from two or more water inlets, the air gap to the lowest inlet shall be the greater of 25 mm or twice the sum of all the inlet pipe diameters.

2.2 Types of Air Gap

Air gaps shall be one of the following types:

(a) Type A – Unobstructed air gap (Figure 2-1) –The air gap is measured from the spill level to the inlet pipe discharge point in accordance with Appendix C.

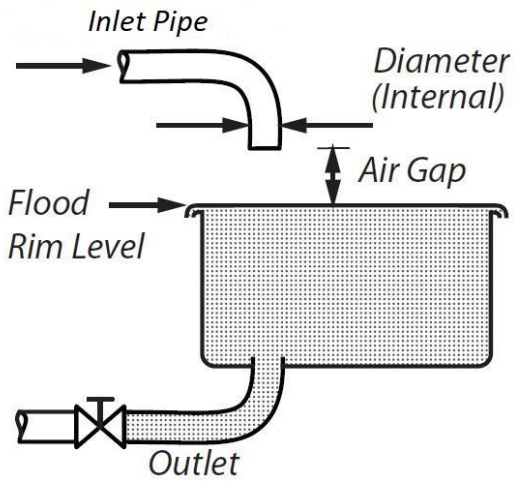


Figure 2-1 Unobstructed Air Gap

(b) Type B – Air gap with overflow (Figure 2-2) – The air gap is measured from the highest point of the tank spill level to the inlet pipe discharge point in accordance with Appendix C.

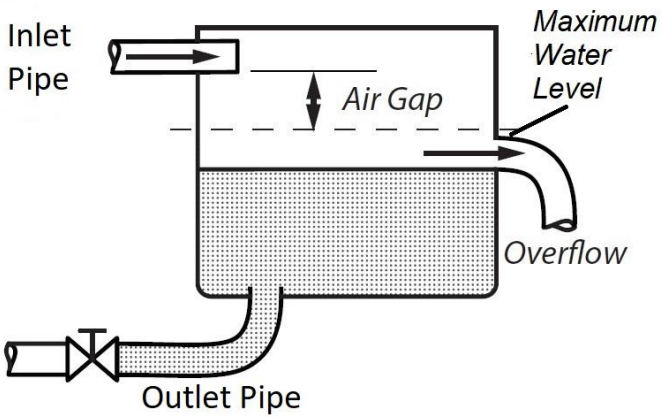


Figure 2-2 Air gap with overflow

3. FIELD TESTING OF MECHANICAL DEVICES

3.1 Field Testing Procedures

Field testing, which includes verification, for the nominated backflow prevention devices, shall be performed in accordance with the applicable test procedures in Table 3.1, with all measurement taken at ambient air temperature.

As Detector Assembly Backflow Prevention Devices have a higher differential pressure across the upstream check valve on the main line device than the device on the bypass line, reference shall be made to the manufacturers' representative for the required differential pressures.

Prior to conducting field tests special attention shall be given to the safety guidelines in Appendix A particularly notification of the occupier or owner of the premise.

Testing shall occur after installation and after maintenance or repair, and thereafter shall be carried out regularly, at intervals not exceeding 12 months.

After repairs are completed, entrapped air shall be bled off in accordance with manufacturer's instructions.

Backflow testers shall be trained to and been awarded appropriate unit standards (current NZQA unit standards 23848 and 23847) and shall be registered with the local authority under whose jurisdiction the devices being tested are located.

NOTES

1 The line strainer should be cleaned before commencing the test procedure. Cleaning after the test can result in fouling of the check valves which would invalidate testresults.

2 Replacement components used for repair should be compliant with ASNZS 2845.1

Table 3.1 TEST REQUIREMENTS

Device	Test procedure
Air gap	Appendix C
Reduced-pressure-zone device	Appendix F
Double check-valves	Appendix G
Pressure vacuum breaker	Appendix H
Spill resistant pressure vacuum breaker	Appendix J
Atmospheric vacuum breaker	Appendix K

3.2 Test Equipment

For test equipment (see Appendix D and Appendix E) used for the field testing of backflow prevention devices:

- shall be calibrated and certified at least annually by a laboratory accredited by International Accreditation New Zealand (IANZ) for the testing and calibration of such equipment.
- the calibration certificate shall be retained with the test kit
- a copy of the calibration certificate shall be sent to the water supply authority and the Territorial Authority at the time of IQP registration.
- shall be recalibrated if damaged or the tester suspects the equipment is faulty.

NOTE: Testers are advised to check equipment more frequently using the test method in Appendix L.

3.3 Preliminary procedures

Prior to testing, the following actions shall be taken:

(a) Obtain permission to shut down the water supply from the appropriate personnel.

(b) Determine the type of device.

(c) Determine the direction of flow.

(d) Identify the test cocks.

(e) Fit test adaptors, if required.

4. REPORTING OF TEST RESULTS

The test reports shall contain details of the device, location and ownership together with other pertinent information as shown in the example report form in Appendix O for the relevant device.

As a duty of care, all failed devices and any non-compliance with installation requirements shall be documented on the test report and notified to (a) or (b) below.

The test report shall be completed and signed by the tester irrespective of the test result.

Copies of the test report shall be retained by the tester and provided to the client.

NOTES:

Copies should be forwarded to the following:

(a) the relevant regulatory authority;

(b) the water supply authority, in the case of boundary protection devices.

(c) Building compliance officer (IQP)

APPENDICES

Appendix A SAFETY AND OTHER GUIDELINES

(Informative)

These guidelines are not exhaustive and should be read in conjunction with the tester's and client's site specific health and safety requirements.

A1 Hygiene

All tools and equipment used must be specifically for water services work to avoid the potential to contaminate the potable water supply. Always follow strict hygiene practices such as hand washing and sanitation, covering of open sores with waterproof dressings and stand-down periods for illness and infections. If engaged in work on wastewater systems, ensure relevant immunisations are current. Where the water supply authority has a relevant Hygiene Code of Practice this should be followed.

A2 Confined Spaces

Confined space entry is notifiable work under Health and Safety in Employment Act. If you must test a device in a pit or confined space, notify the client and the relevant authority well in advance of your test so that safety personnel can be present. Gas detectors, safety harnesses, battery lights, sump pumps and additional personnel above the pit, may be required. Refer to *AS/NZS 2865-Safe working in a confined space.*

A3 Electrical Hazards

Care should be taken with and around electrical equipment with respect to personal safety. When testing any backflow prevention devices be aware that the water discharged during testing could pass over electrical equipment installed below the device.

A4 Get Permission

Never walk through a facility, on your way to a device location, without first notifying a responsible representative of the company who owns the device. You may be trespassing if you first do not have permission to enter the facility to perform the test.

A5 Testing Supplies to Fire Sprinkler Systems

When testing a device installed as part of a fire sprinkler system, correct protocols need to be followed. The facility's owners or tenants may have requirements to inform their insurers, and the isolation valves may be interfaced to signal a Fire Call with Fire and Emergency New Zealand. Failure to follow correct protocols could cause the facility's fire evacuation alarms to sound, summoning the Fire Brigade, and shutting down onsite processes. In addition, if it is a requirement for the insurers to be notified and they are not notified, this may be deemed a material fact should fire occur while the sprinkler system is isolated.

A6 Testing Devices with Restricted Access

Prior to carrying out testing of devices, the tester must ensure all Health and Safety issues or site hazards are practically mitigated to comply with the Health & Safety at Work Act 2015

A7 Other Safety Devices

The testing and venting of backflow prevention devices should not hinder the operation of other system safety devices, i.e. alternatives made with client for safety shower, eye wash.

A8 Notify Owner Before Shutting Off Water

The owner of the device or their authorised agent shall be notified in advance that the water service will be shut off during the test procedures. Arrangements may have to be made so that interruptions to services will not create a hardship to the user. If a fire sprinkler service is being shut down, the appropriate people shall be notified. Ensure the water is turned back on to fill the system slowly. Note: valves may be clockwise or counter-clockwise closing.

A9 When Operating a Test Kit

When operating all valves and test cocks they should be opened and closed slowly to prevent pressure spikes or damage to the valves or test equipment.

Appendix B CALCULATION OF AIR GAPS

(Normative)

B1 Flow rate through an orifice

The supply rate shall be determined from the following equation:

$$Q = mA\sqrt{2gHx10^3}$$

where

Q = supply rate, in litres per second
m = orifice coefficient for thin sharp-edged plate = 0.6
A = cross-sectional area of orifice, in square metres
g = acceleration due to gravity (9.8 m/s^2)
H = head of water on inlet of orifice, in metres

NOTES:

1 The diameter of the float valve inlet orifice is not necessarily related to the nominal size of the fitting.
2 As a guide, the orifice size is normally half the nominal size, except in the case of full way valves.

B2 Rate of outflow from type 1 overflow (piped) horizontal outlet storage tanks

Flow rates shall be determined from the following equations, where h and d are as in Figure B1:

Weir flow: $\boldsymbol{h \leq d,\ Q = 4.66x10^{-5}d^{0.7}h^{1.8}}$

Orifice flow: $\boldsymbol{h \leq d,\ Q = 4.66x10^{-5}d^{0.7}h^{1.8}}$

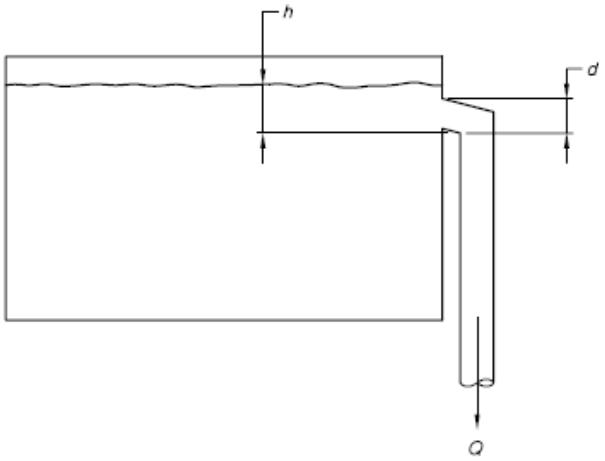


Figure B1 Type 1 overflow

B3 Rate of outflow from type 2 overflow (piped) vertical outlet storage tanks

Flow rates shall be determined from the following equations, where h and d are as Figure B2:

Weir flow: $\boldsymbol{h \leq d/3,\ Q = 1.98x10^{-4}dh^{1.5}}$

Orifice flow: $\boldsymbol{h \leq d,\ Q = 6.60x10^{-5}d^2\sqrt{h}}$

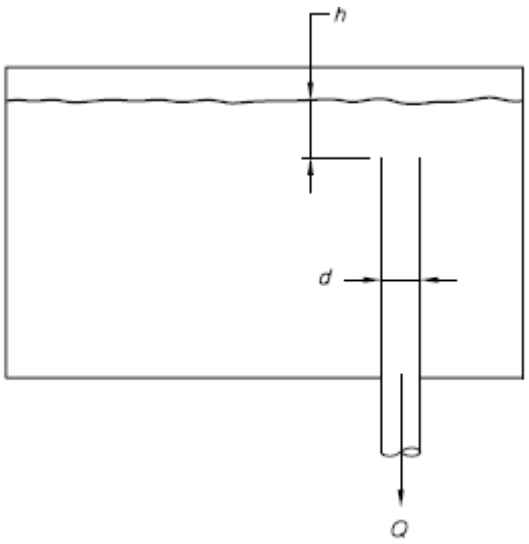


Figure B2 Type 2 overflow

B4 Rate of outflow from type 3 overflow (weir) rectangular storage tanks

Flow rates shall be determined from the following equation, where *h* and *b* are as Figure B3:

Weir flow: $\boldsymbol{Q = 5.39x10^{-5}bh^{1.5}}$

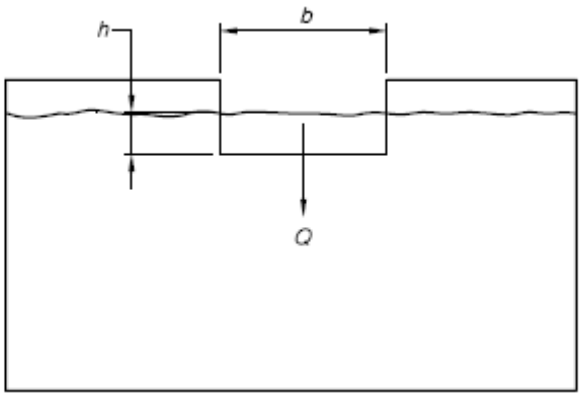


Figure B3 Type 3 overflow

B5 Determination of air gap

The air gap shall be calculated as the distance between the invert or lowest point of the inlet and the height of the water level determine as in B2, B3 or B4 for the relevant style of discharge.

Appendix C VERIFICATION OF AIR GAPS

(Normative)

C1 Scope

This Appendix sets out the method for verifying air gaps.

C2 Procedure

C2.1 *Type A* (Figure 2-1 Unobstructed Air Gap)

The Procedure shall be as follows:

(a) Determine the spill level by overflowing the tank and observing, after ensuring the tank outlets are isolated.

(b) Measure and record the distance from the spill level to the discharge point of the lowest water service pipe.

(c) Complete the test sheet, Appendix M.
- (i) If the air gap complies with the minimum air gap (clause 2.1.1 or 2.1.2 as applicable), record as compliant,
- (ii) If the water supply pipe is not secure or the air gap cannot be measured, record as non-compliant on the test sheet,
- (iii) If the air gap is in a toxic environment, record as non-compliant.

C2.2 *Type B* (Figure 2-2 Air gap with overflow)

The procedure shall be as follows:

(a) Ensure the tank outlets are isolated.

(b) Check that the tank has an overflow below the level of the inlet.

(c) Inspect overflow entry for any obstructions.

(d) Measure and record the service pipe diameter and overflow pipe diameter.

(e) Determine the spill level either –
- (i) by checking the overflow function under full flow conditions for at least 60 seconds or until steady state is achieved by fully discharging the inlet service pipe, until the water rises to the spill level (the maximum water level achieved in the tank), or
- (ii) by calculation in accordance with Appendix B

NOTE: Check that there is no bridging device between the discharge point of the service pipe and the spill level.

(f) Measure and record the air gap.

(g) Complete the test sheet, Appendix M.
- (i) If the air gap complies with the minimum air gap (clause 2.1.1 or 2.1.2 as applicable), record as compliant,
- (ii) If the air gap cannot be measured, record as non-compliant on the test sheet,
- (iii) If the air gap is in a toxic environment, record as non-compliant.

(h) Return the inlet service pipe to pre-test status.

(i) Return the outlet pipe to pre-test status.

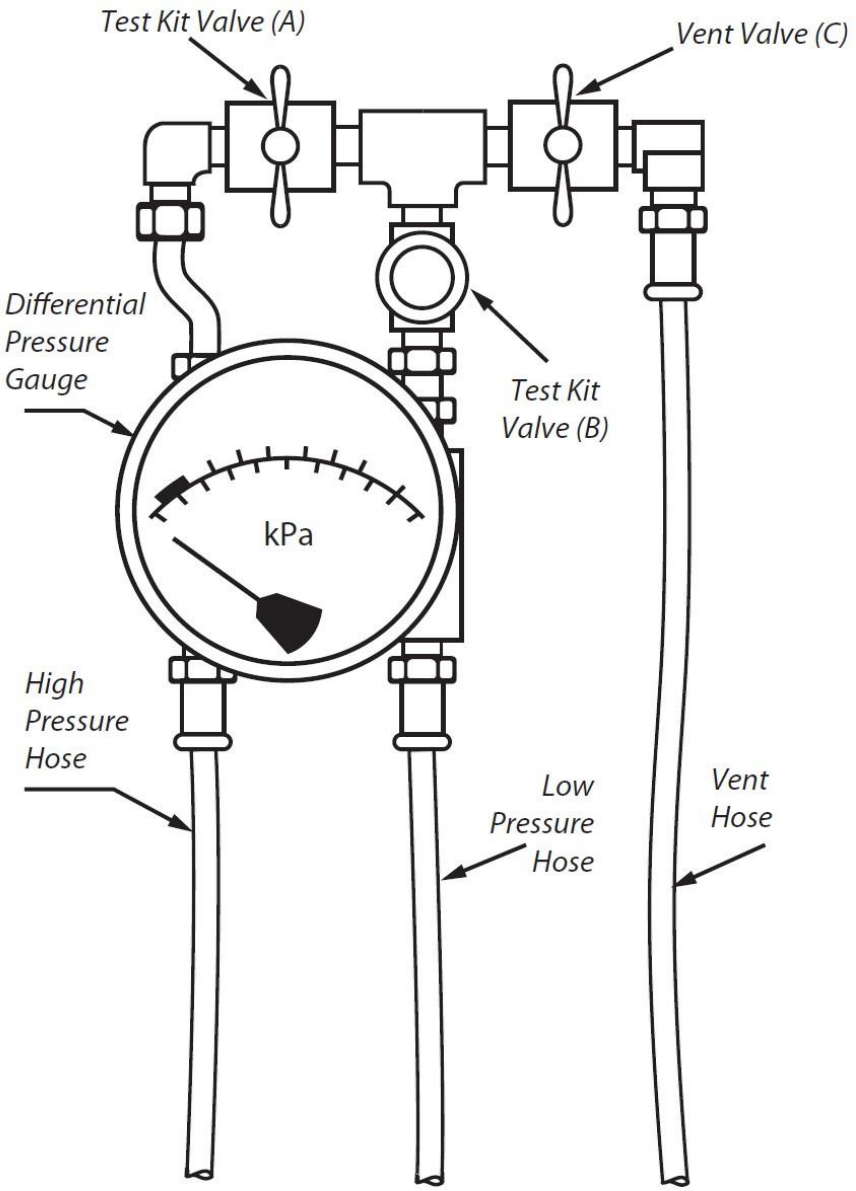
C3 Test Report

The information as set out in Appendix M shall be reported. All dimensional measurements shall be made and recorded in millimeters. Any reason for non-compliance shall be noted.

Appendix D THREE VALVE TEST KIT

(Informative)

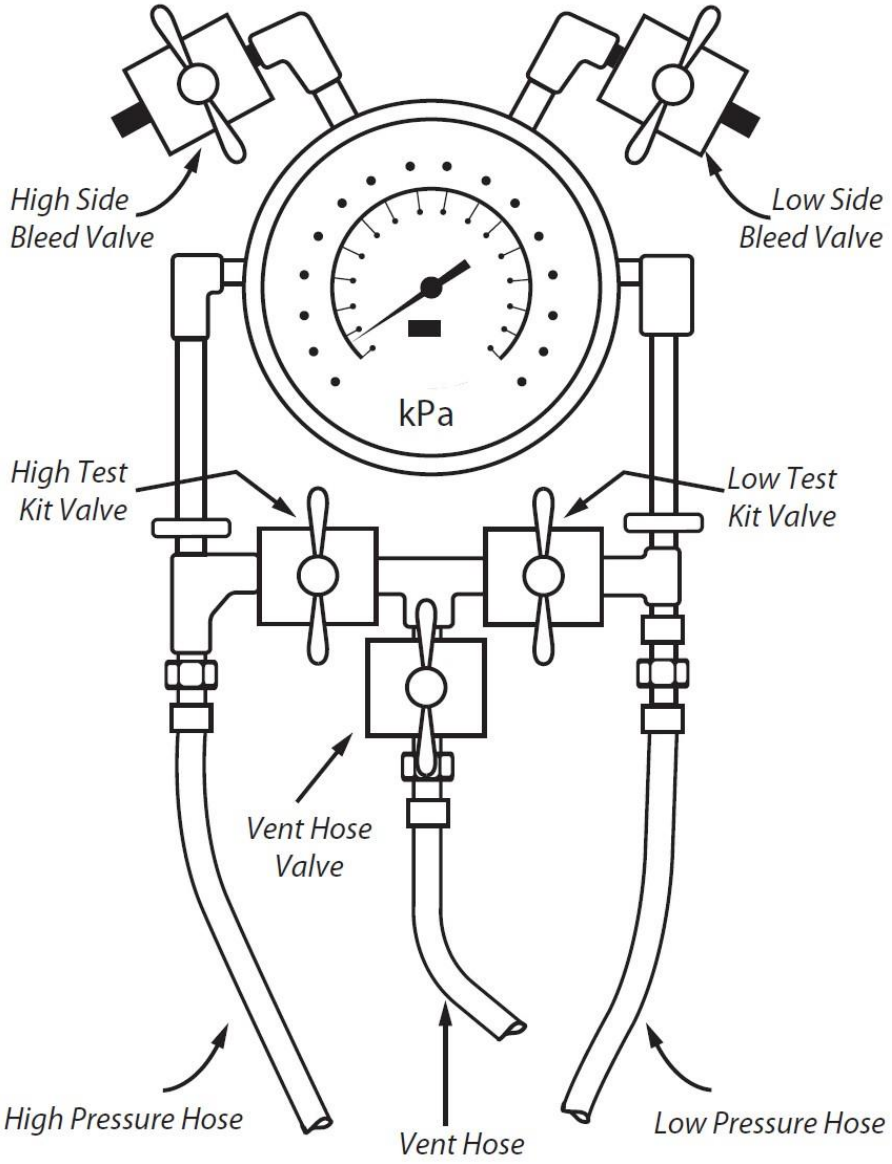
Figure D1 Typical Arrangement of 3 Valve Test Kit



Appendix E FIVE VALVE TEST KIT

(Informative)

Figure E1 Typical Arrangement of 5 Valve Test Kit



Appendix F FIELD TESTING OF REDUCED-PRESSURE-ZONE BACKFLOW PREVENTION

(Normative)

F1 Scope

This Appendix sets out the method for field testing reduced-pressure-zone backflow prevention devices.

F2 Apparatus

A test kit as shown in Figure D1 or Figure E1 is required, with the kit level with or above the device being tested.

F3 Procedure using 3-valve test kit

With reference to Figures D1 and F1, the procedure shall be as follows:

(a) Verify the inlet isolating valve (8) is open, and then slowly close the outlet isolating valve (4). If there is no leakage from the relief port (7), it is assumed that the upstream check valve (5) is tight.

(b) In sequence, slowly open and close test cocks (1), (2) and (3) to flush out any impurities.

To test the upstream check valve:

(c) Ensure test kit valve (A) is closed, (B) is closed and (C) is open.

(d) Connect –
(i) the high-pressure hose A of the test kit to test cock (1); and
(ii) the low-pressure hose B of the test kit to test cock (2).

(e) Slowly open test cocks (1) and (2).

(f) Slowly open test kit valve (A) and bleed water through the vent hose.

(g) Slowly close test kit valve (A).

(h) Slowly open test kit valve (B) and bleed water through the vent hose to eliminate air from the system.

(i) Slowly close test kit valve (B).

(j) Record the reading on the differential pressure gauge, the pressure drop across the inlet check valve (5).
NOTE: A reading below 35 kPa is a failed test. After repair the test should then be repeated.

To test the downstream check valve for tightness:

(k) Connect the vent hose to test cock (3).

(l) Slowly open test cock (3) and slowly open test kit valve (A).

(m) Observe the relief port (7).

(n) Record whether there is any discharge.
NOTE: A discharge from the relief port may indicate the downstream check valve (6) or downstream isolating valve (4) is leaking and may need repairing. The final test procedure of the valve will verify the downstream check valve.

To test the downstream isolating valve:

(o) Slowly close test cock (1) to stop the supply of high pressure water downstream of the downstream check valve (6).

(p) Observe the differential gauge.
NOTE: If the pressure differential decreases (approaches zero) this indicates the outlet isolating valve (4) is leaking and should be repaired. Leakage invalidates the results of the earlier tests. These must be repeated after the isolating valve is repaired.

To test the relief valve:

(q) Slowly open test cock (1) and slowly open test kit valve (B), observing both the differential gauge and the relief port (7).

(r) Record the reading on the differential gauge when the relief port (7) commencesdischarging.
NOTE: The reading must be no less than 14 kPa.

(s) Remove the hoses from test ports

To test the operation of the downstream check valve:

(t) Connect the high-pressure hose to test cock (2).

(u) Connect the low-pressure hose to test cock (3).

(v) Slowly open test cocks (2) and (3).

(w) Slowly open test kit valve (A) and bleed water through the vent valve (C).

(x) Slowly close test kit valve (A).

(y) Slowly open test kit valve (B) and bleed water through the vent valve (C).

(z) Slowly close test kit valve (B) and observe and record the reading on the differential pressure gauge.
NOTE: A reading below 7 kPa is a failed test. After repair the test should then be repeated.

(aa) Slowly close test cocks (2) and (3), open test kit valves (A) and (B) to drain the testkit.
NOTE If the differential pressure gauge remains steady the outlet isolating valve is tight. If the differential pressure gauge reading drops, the valve is leaking and must be repaired or replaced.

(bb) Slowly close all test cocks.

(cc) Disconnect the test kit, draining the kit and hoses.

(dd) Slowly open the outlet isolating valve to restore the system to operatingcondition.

F4 Procedure using 5-valve test kit

With reference to Figures E1 and F1, the procedure shall be as follows:

(a) Verify the inlet isolating valve (8) is open, and slowly close the outlet isolating valve (5). If there is no leakage from the relief port (7), it is assumed that the upstream check valve is tight.

(b) In sequence, slowly open and close test cocks (1), (2) and (3) to flush out any impurities.

To test the upstream check valve:

(c) Slowly close the high-side (A) and low-side (B) test kit valves. Leave the vent hose valve (C) open.

(d) Connect the high-pressure hose to test cock (1).

(e) Connect the low-pressure hose to test cock (2).

(f) Slowly open test cocks (1) and (2).

(g) Slowly open the high-side bleed valve to bleed air from the high-pressure hose and then slowly close the high-side bleed valve.

(h) Slowly open the low-side bleed valve to bleed air from the low-pressure hose and then slowly close the low- side bleed valve.

(i) Record the differential pressure gauge reading.
NOTE It must be a minimum of 35 kPa.

To test the downstream check valve:

(j) Connect the vent hose to test cock (3).

(k) Slowly open test cock (3), the high-side test kit valve (A) and vent hose valve (C).
NOTE This supplies high pressure water downstream of the downstream check valve. If the differential pressure gauge falls off and water comes out the relief valve, the downstream check valve is recorded as leaking. If the differential pressure gauge remains steady and no water comes out the relief valve, the downstream check valve is considered tight.

To test the outlet isolating valve:

(l) Slowly close test cock (1) to stop the supply of high pressure water downstream of the downstream check valve.
NOTE If the differential pressure gauge remains steady the outlet isolating valve is tight. If the differential pressure gauge reading drops, the outlet isolating valve is leaking and must be repaired or replaced.

To check the relief opening point:

(m) Slowly open test cock (1).

(n) Slowly open the low-side test kit valve (B) and record the differential pressure gauge reading when the water starts to drip from the relief valve opening.
NOTE The reading must be no less than 14 kPa.

(o) Slowly close all test cocks.

(p) Disconnect the test kit draining the kit and hoses.

(q) Slowly open the outlet isolating valve (4).

F5 Test Report

The following shall be reported:

(a) The readings at steps F3 (i) and (q) for the 3-valve test kit or steps F4 (i) and (n) for the 5-valve test.

(b) The presence or absence of any discharge at step F3 (m) or F4 (k).

(c) Whether the outlet isolating valve is tight.

(d) Reference to this test method, i.e. NZ backflow testing standard 2011, Appendix F

F6 Criteria for Acceptance

The following shall be the criteria for acceptance:

(a) The reading at step F3 (i) for the 3-valve test kit or step F4 (i) for the 5-valve test shall be not less than 35 kPa.

(b) There shall be no discharge from the relief port at step F3 (m) or F4 (k).

(c) The reading at step F3 (q) for the 3-valve test kit or steps F4 (n) shall be not less than 14 kPa.

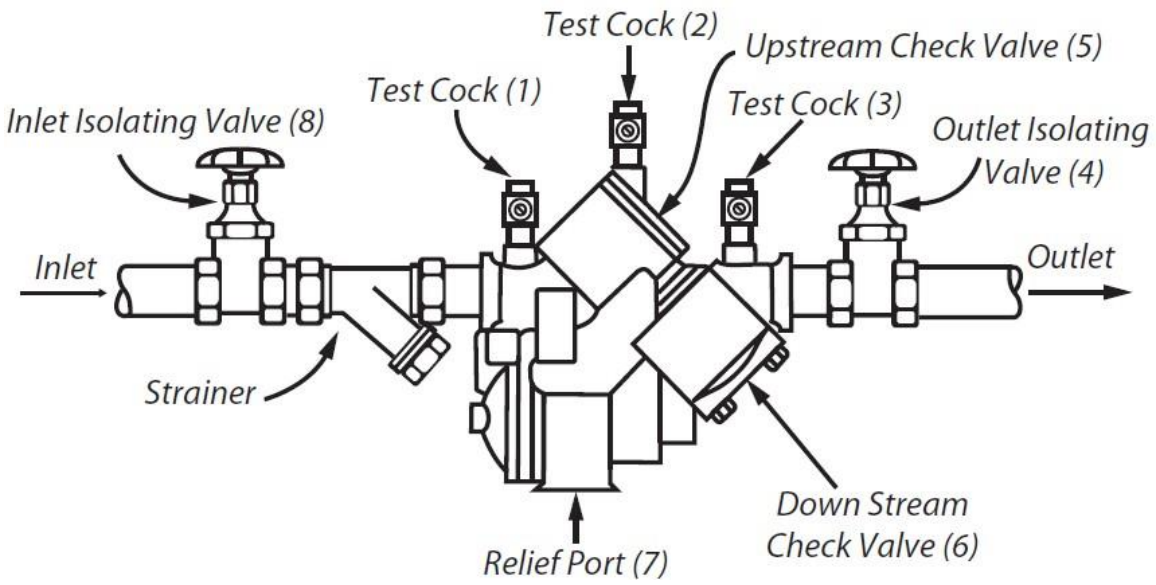


Figure F1 Typical test arrangement for reduced pressure zone backflow prevention device

Appendix G FIELD TESTING OF DOUBLE CHECK VALVE BACKFLOW PREVENTION DEVICES

(Normative)

G1 Scope

This Appendix sets out the method for field testing double check-valve backflow prevention devices.

G2 Apparatus

A test kit as shown in Figure D1 or Figure E1 is required, with the kit level with or above the device being tested.

G3 Procedure using 3-valve test kit

With reference to Figures D1 and G1, the procedure shall be as follows:

(a) Ensure the inlet isolating valve (7) is open.

(b) Slowly close the outlet isolating valve (4).

(c) In sequence, slowly open and close test cocks (1), (2) and (3) to flush out any impurities.

To test the upstream check valve:

(d) Ensure test kit valve (A) is closed, (B) is closed and (C) is open

(e) Connect –
  i. the high-pressure hose A of the test kit to test cock (1); and
  ii. the low-pressure hose B of the test kit to test cock (2).

(f) Slowly open test cocks (1) and (2).

(g) Slowly open test kit valve (A) and bleed water through the vent valve (C).

(h) Slowly close test kit valve (A).

(i) Slowly open test kit valve (B) and bleed water through the vent valve (C).

(j) Slowly close test kit valve (B) and observe and record the reading on the differential pressure gauge.
NOTE: A reading below 7 kPa is a failed test. After repair the test should then be repeated.

To test the downstream isolating valve:

(k) Connect the vent hose to test cock (3).

(l) Slowly open test cock (3) and slowly open test kit valve (A).

(m) Slowly close test cock (1) to stop the supply of high pressure water downstream of the downstream check valve .

(n) Observe the differential gauge.
NOTE: If the pressure differential decreases (approaches zero) this indicates the outlet isolating valve (4) is leaking and should be repaired. Leakage invalidates the results of the earlier tests. These must be repeated after the isolating valve is repaired.

(o) Slowly close test cocks (1) and (2) and then slowly open test kit valves (A) and (B) to drain the testkit.

(p) Disconnect the test kit hoses from test cocks (1) and (2)and (3)

(q) Ensure test kit valve (A) is closed, (B) is closed and (C) is open

To test the downstream check valve:

(r) Connect the high-pressure hose to test cock (2).

(s) Connect the low-pressure hose to test cock (3).

(t) Slowly open test cocks (2) and (3).

(u) Slowly open test kit valve (A) and bleed water through the vent valve (C).

(v) Slowly close test kit valve (A).

(w) Slowly open test kit valve (B) and bleed water through the vent valve (C).

(x) Slowly close test kit valve (B) and observe and record the reading on the differential pressure gauge.
NOTE: A reading below 7 kPa is a failed test. After repair the test should then be repeated.

(y) Slowly close test cocks (2) and (3), slowly open test kit valves (A) and (B) to drain the testkit.

G4 Procedure using 5-valve test kit

With reference to Figures E1 and G1, the procedure shall be as follows:

To test upstream check valve

(a) Verify the inlet isolating valve (7) is open and then slowly close the outlet isolating valve(4).

(b) In sequence, slowly open and close test cocks (1), (2) and (3) to flush out anyimpurities.

(c) Slowly close the high-side (A) and low-side test (B) kit valves, leaving the vent hose valve (C)open.

(d) Connect the high-pressure hose to test cock (1).

(e) Connect the low-pressure hose to test cock (2).

(f) Slowly open test cocks (1) and (2).

(g) Slowly open the high-side bleed valve to bleed air from the high-pressure hose and then slowly close the high-side bleed valve.

(h) Slowly open the low-side bleed valve to bleed air from the low-side pressure hose and then slowly close the low-side bleed valve.

(i) Record the differential pressure gauge reading.
NOTE: A reading below 7 kPa is a failed test. After repair the test should then be repeated.

(j) Slowly close test cocks (1) and 2.

(k) Disconnect the test kit and drain the hoses.

To test downstream check valve:

(l) Connect the high-pressure hose to test cock (2).

(m) Connect the low-pressure hose to test cock (3).

(n) Slowly open test cocks (2) and (3).

(o) Slowly open the high-side bleed valve to bleed air from the high-pressure hose and then slowly close the high bleed valve.

(p) Slowly open the low-side bleed valve to bleed air from the low-pressure hose and then slowly close the low- side bleed valve.

(q) Record the differential pressure gauge reading
NOTE: A reading below 7 kPa is a failed test. After repair the test should then be repeated.

(r) Slowly close test cocks (2) and (3).

(s) Disconnect the test kit and drain the hoses.

To test the outlet isolating valve:

(t) Connect the high-pressure hose to test cock (1).

(u) Connect the low-pressure hose to test cock (2).

(v) Connect the vent hose to test cock (3).

(w) Slowly open test cocks (1), (2) and (3).

(x) Slowly open the high-side bleed valve to bleed air from the high-pressure hose and then slowly close the high-side bleed valve.

(y) Slowly open the low-side bleed valve to bleed air from the low-pressure hose and then slowly close the low- side bleed valve.

(z) Record the differential pressure gauge reading.
NOTE: A reading below 7 kPa is a failed test. After repair the test should then be repeated.

(aa) Slowly open the high-side (A) test kit valve and the vent hose (C) test kit valve to supply high pressure water downstream of the downstream check valve (6).

(bb) Slowly close test cock (1) to stop the supply of high pressure water downstream of the downstream check valve (6).

(cc) If the differential pressure gauge reading drops the outlet isolating valve (4) is leaking. If the gauge remains steady the outlet isolating valve is recorded as being tight.

(dd) Slowly close off all test cocks.

(ee) Disconnect the test kit and drain the hoses.

(ff) Slowly open the outlet isolating valve to restore the device to operating condition.

G5 Test Report

The following shall be reported:

(a) The readings at steps G3 (j), (t) and (cc) for the 3-valve test kit or steps G4 (i), (q) and (z) for the 5-valve test.

(b) Whether the outlet isolating isolation valve (4) is tight.

(c) Reference to this test method, i.e. NZ backflow testing standard 2011, Appendix G.

G6 Criteria for Acceptance

The readings at steps G3 (j), (m) and (w) for the 3-valve test kit and steps G4 (i), (q), (z) and (cc) for the 5-valve test shall be not less than 7 kPa.

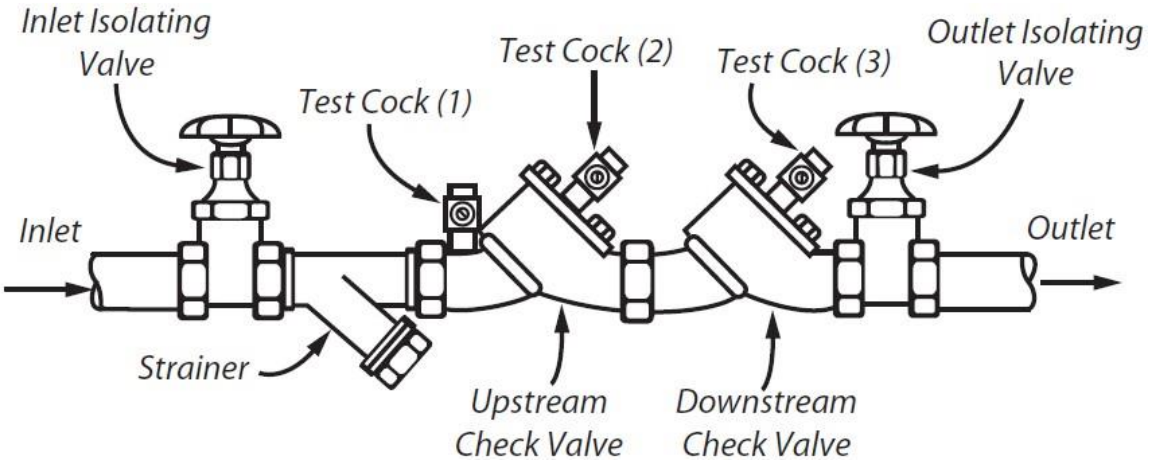


Figure G1 Typical test arrangement for double check valve backflow prevention device

Appendix H FIELD TESTING OF PRESSURE VACUUM-BREAKERS

(Normative)

H1 Scope

This Appendix sets out the method for field testing pressure vacuum-breaker backflow prevention devices.

H2 Apparatus

A test kit as shown in Figure D1 or in Figure E1 is required, with the kit level with or above the device being tested.

H3 Procedure using 3-valve test kit

With reference to Figures D1 and H1, the procedure shall be as follows.

To test the check valve:

(a) Remove the air port shield (3).

(b) Slowly open the inlet isolating valve (4).

(c) Slowly close the outlet isolating valve (5).

(d) Slowly open and close test cocks (1) and (2) to flush out any impurities.

(e) Connect –
  (i) The high-pressure hose of the test kit to test cock (1); and
  (ii) The low-pressure hose of the test kit to test cock (2).

(f) Slowly close test kit valves (A) and (B).

(g) Slowly open test kit valve (C).

(h) Slowly open test cocks (1) and (2).

(i) Slowly open test kit valve (A) to bleed water through the vent valve (C).

(j) Slowly close test kit valve (A).

(k) Slowly open test kit valve (B) to bleed water through the vent valve (C).

(l) Slowly close test kit valve (B).

(m) Record the reading on the differential pressure gauge.
  NOTE: A reading below 7 kPa is a failed test. After repair the test should then be repeated.

(n) Slowly close test cocks (1) and (2), slowly open test kit valves (A) and (B) and disconnect the testkit.

(o) Ensure test kit valve (A) is closed, (B) is closed and (C) is open.

To test the air inlet valve:

(p) Connect the high-pressure hose to test cock (2)

(q) Bleed the high-pressure hose by slowly opening test cock (2). Then slowly open test kit valve A.

(r) While water is draining through C in sequence slowly close –
  (i) test kit valve (C); and
  (ii) inlet isolating valve (4).

(s) Very slowly open test kit valve (B).
NOTES:
1 If the gauge fails to drop, either the upstream valve is not fully closed or it is leaking.
2 If the pressure in the gauge drops, turn off B. If the gauge goes up it indicates the downstream valve is leaking and backpressure may be present.

(t) Record the reading on the differential pressure gauge when the air inlet valve opens.
NOTES:
1 A reading below 7 kPa is a failed test. After repair the test should then be repeated.
2 If the pressure on the gauge is rising, the inlet isolating valve (4) is leaking.
3 If the pressure on the gauge is dropping (approaching zero), the outlet isolating valve is leaking.
4 The faulty valves must be repaired, or replaced, and a new test performed, as leakage invalidates the test results.

(u) Slowly close test cock (2).

(v) Remove the test kit, replace the air port shield (3) and slowly open isolating valves (4) and (5), to restore the device to operating condition.

H4 Procedure using 5-valve test kit

With reference to Figures E1 and H1, the procedure shall be as follows:

To test the check valve:

(a) Remove the air port shield (3).

(b) Slowly open the inlet isolating valve (4).

(c) Slowly close the outlet isolating valve (5).

(d) Slowly open and close test cocks (1) and (2) to flush out any impurities.

(e) Connect the high-pressure hose to test cock (1).

(f) Connect the low-pressure hose to test cock (2).

(g) Slowly close test kit high-side and low-side bleed valves and the vent hose valve (C).

(h) Slowly open test cocks (1) and (2) slowly.

(i) Slowly open the high-side bleed valve to bleed air from the high-pressure hose and then slowly close the high-side bleed valve.

(j) Slowly open the low-side bleed valve to bleed air from the low-pressure hose and then slowly close the low- side bleed valve.

(k) Record the differential pressure gauge reading.
NOTE: A reading below 7 kPa indicates the check valve is faulty and the test has failed.

(l) Slowly close test cocks (1) and (2).

(m) Disconnect the hoses, draining the test kit by opening valves (A), (B) and (C).

To test the air inlet valve:

(n) Connect the high-pressure hose to test cock (2).

(o) Slowly close test kit high-side (A), low-side (B) and vent hose (C) valves.

(p) Slowly open test cock (2) slowly.

(q) Slowly open the high-side bleed valve, and then slowly close it, observing the differential pressure on the test kit.

(r) Slowly close the inlet isolating valve (4)

(s) Slowly open the high-side bleed valve.

(t) Record the differential pressure gauge reading when the air inlet valve opens.
NOTES:
1 A reading below 7 kPa is a failed test. After repair the test should then be repeated.
2 If the pressure on the gauge is rising, the inlet isolating valve (4) is leaking.
3 If the pressure on the gauge is dropping (approaching zero), the outlet isolating valve is leaking.
4 The faulty valves must be repaired, or replaced, and a new test performed, as leakage invalidates the test results.

(u) Slowly close test cock (2).

(v) Disconnect the test kit, draining the hoses by opening valves (A), (B) and (C).

(w) Slowly open both the isolating valves, (4) and (5), and replace the air port shield (3) to restore the device to operating condition.

H5 Test Report

The following shall be reported:

(a) The readings obtained at steps H3 (m) and (t) for the 3-valve test kit, or steps H4 (k) and (t) for the 5-valve test kit.

(b) Whether the outlet isolating valve is tight.

(c) Reference to this test method, i.e. NZ backflow testing standard 2011, Appendix H.

H6 Criteria for Acceptance

The readings at steps H3 (m) and (t), or steps H4 (k) and (t) shall be not less than 7 kPa, and the outlet isolating valve shall be tight.

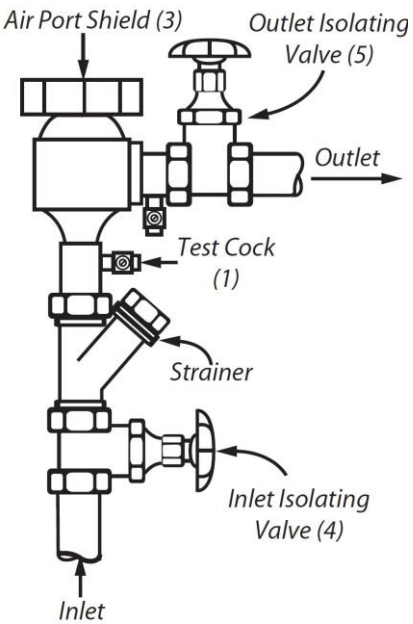


Figure H1 Typical Pressure Vacuum Breaker

Appendix J FIELD TESTING OF PRESSURE VACUUM-BREAKERS

(Normative)

J1 Scope

This Appendix sets out the method for field testing spill-resistant vacuum-breakers.

J2 Apparatus

A test kit as shown in Figure D1 or Figure E1 is required, with the kit level with or above the device being tested.

J3 Procedure using 3-valve test kit

With reference to Figures D1 and J1, the procedure shall be as follows:

To test the check valve:

(a) Slowly open the inlet isolating valve (4).

(b) Slowly close the outlet isolating valve (5).

(c) Remove the air port shield (2).

(d) Flush out test cock (1) and the bleed screw (3).

(e) Ensure test kit valve (A) is closed, (B) is closed and (C) is open.

(f) Connect the high-pressure hose to the test cock (1).

(g) Bleed the high-pressure hose by slowly opening test cock (1). Then slowly opening test kit valve A

(h) While water is draining through C, in sequence slowly close –
(i) test kit valve (C); and
(ii) inlet isolating valve (4).

(i) Slowly open the bleed screw, observing test kit differential, and record the value when steady. A reading below 7 kPa indicates a failed test.
NOTES:
1 If the gauge fails to drop, either the upstream valve is not fully closed or it is leaking.
2 If the pressure in the gauge drops, turn off B. If the gauge goes up it indicates the downstream valve is leaking and backpressure may be present.

To test the air inlet valve:

(j) Slowly open the test kit valve (B), check that the air inlet valve on top of the device drops open.

(k) Slowly close the test kit valve (B) and the bleed screw (3)

(l) Remove the test kit and drain its hoses.

(m) Refit the air port shield (2).

(n) Slowly open the inlet isolating valve (4) and slowly open the outlet isolating valve (5) to return the device to service.

J4 Procedure using 5-valve test kit

With reference to Figures E1 and J1, the procedure shall be as follows:

To test the check valve:

(a) Slowly open the inlet isolating valve (4).

(b) Slowly close the outlet isolating valve (5).

(c) Remove the air port shield (2).

(d) Flush out test cock (1) and the bleed screw (3).

(e) Connect the high-pressure hose to the test cock (1).

(f) Slowly open the test cock.

(g) Slowly open the high-side bleed valve to bleed air from the high-pressure hose and then slowly close the high-side bleed valve.

(h) Slowly close the inlet isolating valve (4).

(i) Slowly unscrew the bleed screw (3) until the dripping of water stops and the reading on the gauge is steady.

(j) Record the differential pressure gauge reading
NOTE: A reading below 7 kPa indicates the outlet isolating valve is not closed.

To test the air inlet valve:

(k) Slowly open the vent hose valve (C) until the gauge reading is 7 kPa and then close the vent hose valve (C).

(l) Inspect that the air inlet valve is slightly open.

(m) Slowly open vent hose valve (C) fully until the dripping of water completely stops.

(n) Visually inspect that the air inlet valve is fully open.

(o) Slowly close the test cock (1) and the vent hose valve (C).

(p) Disconnect the test kit and drain the hose.

(q) Slowly open both the inlet and outlet isolating valves, (4) and (5).

(r) Replace the air port shield (2).

J5 Test Report

The following shall be reported:

(a) The readings obtained at steps J3 (i) for the 3-valve test kit and steps J4 (j) for the 5-valve test kit.

(b) Whether the air inlet poppet valve opened fully.

(c) Reference to this test method, i.e. NZ backflow testing standard 2011, Appendix J.

J6 Criteria for Acceptance

The readings at steps J3 (i) for the 3-valve test kit and steps J4 (j) for the 5-valve test kit shall be not less than 7 kPa and the poppet shall open fully.

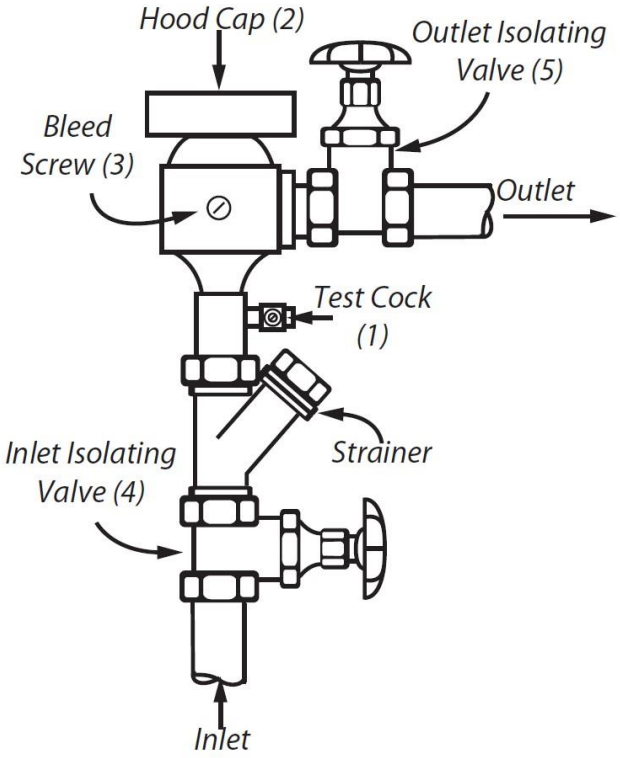


Figure J1 Typical spill-resistant vacuum-breaker

Appendix K FIELD VERIFICATION OF ATMOSPHERIC VACUUM-BREAKERS

(Normative)

K1 Scope

This Appendix sets out the method for verifying the operation of atmospheric vacuum-breaker backflow prevention devices.

K2 Procedure

With reference to Figure K1, the procedure shall be as follows:

(a) Remove air port shield

(b) Operate the device by turning on the fixture or equipment and observe that the poppet or float opens (rises) on increase in pressure, and

(c) Operate the device by turning off the fixture or equipment and observe that the poppet or float closes (lowers) on decrease in pressure.

(failure of the poppet to rise or lower working pressure is a test failure and the device will need to be repaired/replaced)

K3 Test Report

The following shall be reported:

(a) The observations obtained at steps (a) and (b).

(b) Reference to this test method, i.e. NZ backflow testing standard 2019, Appendix K.

K4 Criteria for Acceptance

The poppet or float shall be observed to be moving freely.

Note: the pipework downstream of the device must be open to atmosphere

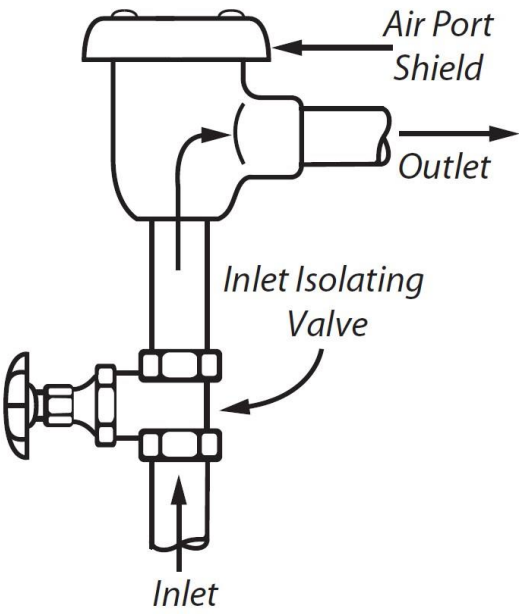


Figure K1 Typical Atmospheric Vacuum-Breaker

Appendix L DIFFERENTIAL GAUGE TEST EQUIPMENT CALIBRATION CHECK

(Normative)

L1 Scope

This Appendix sets out a method for testers to check the calibration of test equipment using a water column.

NOTE: The use of this method does not negate the requirement for all gauges to be calibrated by an IANZ certified laboratory annually, commencing from the date of the manufacturers initial test.

L2 Apparatus

The following apparatus is required:

(a) Two transparent tubes (approx. 20 mm diameter), minimum length 1.5 m.

(b) Adaptors from transparent tube to gauge hoses: rubber stoppers, nipples, elbows.

L3 Procedure for the 3-valve test kit

With reference to Figures D1 and L1, the procedure is as follows:

(a) Attach high-pressure hose to the base of one transparent tube.

(b) Attach low-pressure hose to the base of second transparent tube.

(c) Fill the transparent tubes with water.

(d) Bleed air from the gauge by slowly opening test kit valves (A) and (C), then slowly close valve (A), then slowly open the valve (B) and slowly close again.

(e) Fill or drain transparent tubes to desired heights (h).

(f) Compare the gauge reading to the pressure generated by the water column height (h); if the two values are not equal the gauge must be recalibrated.

(g) If the gauge requires adjustment, contact the gauge manufacturer or a qualified gauge repairer.

L4 Procedure for the 5-valve test kit

With reference to Figures E1 and L1, the procedure is as follows:

(a) Attach high-side hose to the base of one transparent tube.

(b) Attach low-side hose to the base of second transparent tube.

(c) Fill the transparent tubes with water.

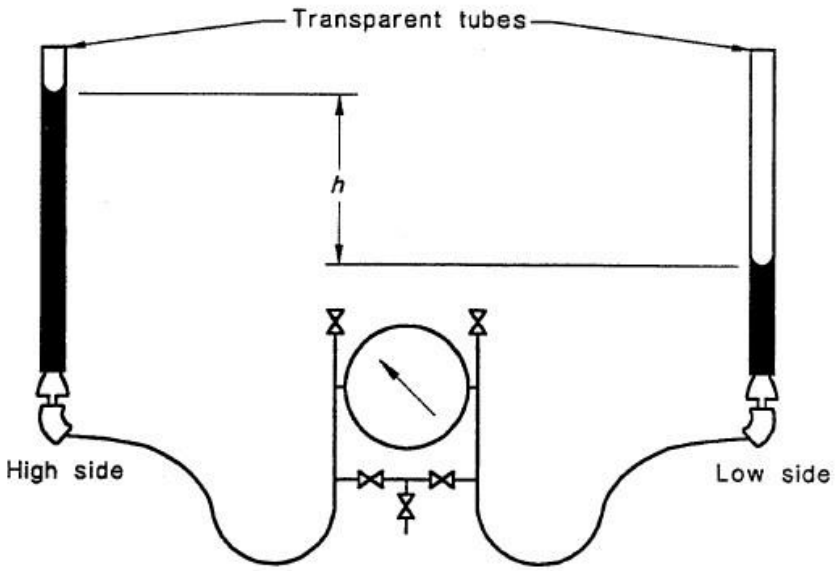
(d) Bleed air from the gauge by slowly opening the high-side bleed valve, then slowly close. Then slowly open the low- side bleed valve and slowly close again.

(e) Fill or drain transparent tubes to desired heights (h).

NOTE: 1 m water = 10 kPa.

(f) Compare the gauge reading to the pressure generated by the water column height (h); if the two values are not equal the gauge must be recalibrated.

(g) If the gauge requires adjustment, contact the gauge manufacturer or a qualified gauge repairer.



NOTES:

1 Readings of h are taken from the bottom of the meniscus in eachcolumn.

2 1 m water = 10 kPa.

3 The set-up for a 3-valve test is equivalent to that shown in the figure for the 5-valve kit.

Appendix M FIELD TESTING OF DETECTOR CHECK DOUBLE CHECK-VALVE BACKFLOW PREVENTION DEVICES

(Normative)

M1 Scope

This Appendix sets out the method for field testing Detector check double check-valve backflow prevention devices.

M2 Apparatus

A test kit as shown in Figure D1 or Figure E1 is required, with the kit level with or above the device being tested.

M3 Procedure using 3-valve test kit

With reference to Figures D1 and G1, the procedure shall be as follows:

To test the MAIN Detector Check Valve

(a) Ensure the inlet isolating valve (7) is open.

(b) Slowly close the outlet isolating valve (4).

(c) In sequence, slowly open and close test cocks (1), (2) and (3) to flush out anyimpurities.

To test the upstream check valve:

(d) Ensure test kit valve (A) is closed, (B) is closed and (C) is open

(e) Connect –
   i. the high-pressure hose A of the test kit to test cock (1); and
   ii. the low-pressure hose B of the test kit to test cock (2).

(f) Slowly open test cocks (1) and (2).

(g) Slowly open test kit valve (A) and bleed water through the vent valve (C).

(h) Slowly close test kit valve (A).

(i) Slowly open test kit valve (B) and bleed water through the vent valve (C).

(j) Slowly close test kit valve (B) and observe and record the reading on the differential pressure gauge.
NOTE: A reading below 7 kPa indicates a faulty check valve.

To test the downstream isolating valve:

(k) Connect the vent hose to test cock (3).

(l) Slowly open test cock (3) and slowly open test kit valve (A).

(m) Observe the differential gauge.
NOTE If the pressure differential decreases (approaches zero) this indicates the outlet isolating valve (8) is leaking and should be repaired. Leakage may invalidate the results of the earlier tests. These must be repeated after the isolating valve is repaired. With a static supply this procedure may be hard to validate as most alarm systems will have an alarm check valve down stream. The testing of the downstream valve on the main assembly is only to ensure the water is in a static state while the test procedure is being undertaken. There is no other reason for the testing of this valve.

(n) Slowly close test cocks (1) and (2) and slowly open test kit valves (A) and (B) to drain the testkit.

(o) Disconnect the test kit hoses from test cocks (1), (2) and (3)

(p) Slowly close test kit valves (A) and (B).

To test the downstream check valve:

(q) Connect the high-pressure hose to test cock (2).

(r) Connect the low-pressure hose to test cock (3).

(s) Slowly open test cocks (2) and (3).

(t) Slowly open test kit valve (A) and bleed water through the vent valve (C).

(u) Slowly close test kit valve (A).

(v) Slowly open test kit valve (B) and bleed water through the vent valve (C).

(w) Slowly close test kit valve (B) and observe and record the reading on the differential pressure gauge.
NOTE: A reading below 7 kPa is a failed test. After repair the test should then be repeated.

(x) Slowly close test cocks (2) and (3), slowly open test kit valves (A) and (B) to drain the testkit.

To test the BYPASS Valve
Repeat steps (d) to (x) on the bypass valve
Note: the downstream isolating valve on the bypass must be closed for testing of both the bypass and the main valve

M4 Test Report

Combine the test values for the upstream (kpa) and downstream (kpa) check valves on the MAIN VALVE

Combine the test values for the upstream (kpa) and downstream (kpa) check valve on the BYPASS VALVE

NOTE:

- The combined reading (kpa) of the main valve must be greater than the combined reading (kpa) of the bypass valve.
- If the bypass valve has a greater combined reading (kpa), then the main valve constitutes a fail and will need repair (irrespective of whether the readings for each specific check valve on Main valve, or the bypass, is above the minimum 7kpa requirement for each check valve).

Appendix N VERIFICATION OF HOSE CONNECTION VACUUM BREAKER

(Normative)

N1 Scope

This Appendix sets out the method for verifying the operation of hose connection vacuum-breaker backflow prevention devices.

N2 Procedure

With reference to Figure N1, the procedure shall be as follows:

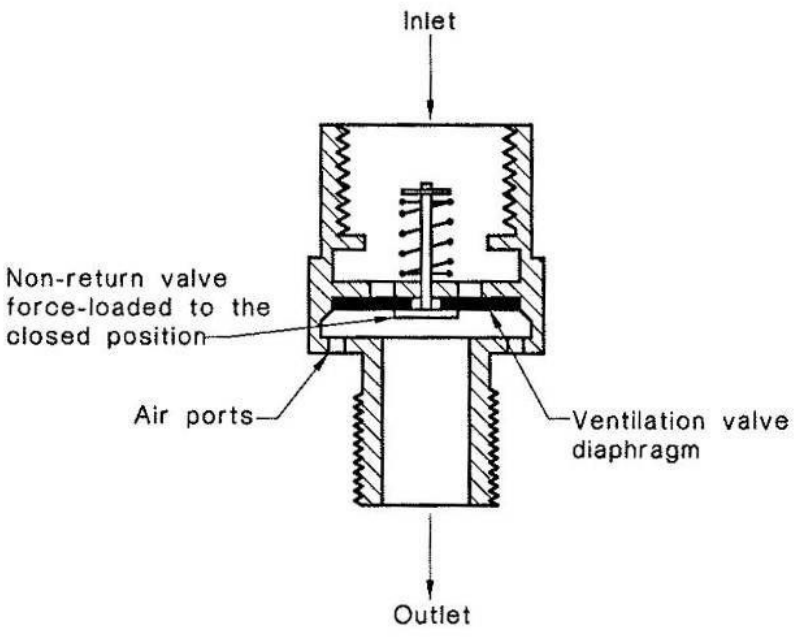
(a) Connect a clear hose one metre in length vertically above the device, turn the tap on to fill the hose, turn the tap off and verify if the hose drains whilst still in the vertical position.

N3 Test Report

The following shall be reported:

(b) The observations obtained at step (a)

(c) Reference to this test method, i.e. NZ backflow testing standard 2019 AppendixN



Appendix O TEST REPORTS

Copyright Waived

Appendix O1 Air Gap

BACKFLOW PREVENTION DEVICE TEST CERTIFICATE

AIR GAP

Use Tab to move to next field.

Building Details:

Building name:	
Block / level / unit number:	
*Street address:	
Suburb:	
Compliance Schedule No.:	
Water meter number:	

Owner:

*Name:	
Contact person:	
*Address:	
Phone number:	

Occupier:

Business name:		Type of business:	
*Contact person:		*Phone number:	

Device Details:

Protection:	Individual source ☐	Zone ☐	Boundary ☐
Location:			
Supply pipe diameter:	mm	Required air gap:	mm
Air gap unobstructed:	Yes ☐ No ☐	Measured air gap:	mm
Overflow type[+]:	1 ☐ 2 ☐ 3 ☐		
Air gap determined:	by observation of spill ☐	by calculation ☐	

Comments:

Test Result: **Compliant** ☐ **Non – compliant** ☐

Tester Details:

Name of tester:		Company name:	
IQP No:		Company address:	
Signature:			
Date of test:			

NOTE: This test report only constitutes an assessment of existing devices and does not mean ALL cross connections on the site have been addressed. Neither does it mean the existing devices are appropriate for the hazard. This must be addressed by an IQP (Survey). Cross connections are a major PUBLIC HEALTH RISK and are the owner's responsibility to ensure they are addressed.

* required entry

[+] see NZ backflow testing standard 2011 for definition of overflow types

BACKFLOW PREVENTION DEVICE TEST CERTIFICATE

REDUCED PRESSURE ZONE DEVICE (RPZD)

Use Tab to move to next field.

Building Details:

Building name:	
Block / level / unit number:	
*Street address:	
Suburb:	
Compliance Schedule No.:	
Water meter number:	

Owner:

*Name:	
Contact person:	
*Address:	
Phone number:	

Occupier:

Business name:		Type of business:	
*Contact person:		*Phone number:	

Device Details:

Protection:	Individual source ☐	Zone ☐	Boundary ☐
Location:			
Manufacturer:		Serial number:	
Model:		Nominal Size:	mm
Installation correct:	Yes ☐ No ☐	Strainer installed:	Yes ☐ No ☐
Comments on installation:			

Test Details:

Test kit serial number:			Calibration date:	
	First check valve	Second check valve	Relief valve opening pressure	Downstream isolating valve
Initial test:	tight ☐ leaked ☐	tight ☐ leaked ☐	kPa	tight ☐ leaked ☐
Pressure reading:	kPa	kPa		
Test after repairs:	tight ☐ leaked ☐	tight ☐ leaked ☐	kPa	tight ☐ leaked ☐
Pressure reading:	kPa	kPa		
Repairs and materials used (if applicable):				
Comments:				
Test Result:	**Pass** ☐	**Fail** ☐	Test method:	

Tester Details:

Name of tester:		Company name:	
IQP No:		Company address:	
Signature:			
Date of test:			

NOTE: This test report only constitutes an assessment of existing devices and does not mean ALL cross connections on the site have been addressed. Neither does it mean the existing devices are appropriate for the hazard. This must be addressed by an IQP (Survey). Cross connections are a major PUBLIC HEALTH RISK and are the owner's responsibility to ensure they are addressed.

* required entry

Appendix O3 Double Check Valve

BACKFLOW PREVENTION DEVICE TEST CERTIFICATE

DOUBLE CHECK VALVE (DCV)

Use Tab to move to next field

Building Details:

Building name:	
Block / level / unit number:	
*Street address:	
Suburb:	
Compliance Schedule. No.:	
Water meter number:	

Owner:

*Name:	
Contact person:	
*Address:	
Phone number:	

Occupier:

Business name:		Type of business:	
*Contact person:		*Phone number:	

Device Details:

Protection:	Individual source ☐	Zone ☐	Boundary ☐
Location:			
Manufacturer:		Serial No.:	
Model:		Nominal Size:	mm
Installation correct:	Yes ☐ No ☐	Strainer installed:	Yes ☐ No ☐
Comments on installation:			

Test Details:

Test kit serial number.:		Calibration date:	

	First check valve	Second check valve	Downstream isolating valve
Initial test:	tight ☐ leaked ☐	tight ☐ leaked ☐	tight ☐ leaked ☐
Pressure reading:	kPa	kPa	
Test after repairs:	tight ☐ leaked ☐	tight ☐ leaked ☐	tight ☐ leaked ☐
Pressure reading:	kPa	kPa	

Repairs and materials used (if applicable):	
Comments:	

Test Result: **Pass** ☐ **Fail** ☐ Test method:

Tester Details:

Name of tester:		Company name:	
IQP No:		Company address:	
Signature:			
Date of test:			

NOTE: This test report only constitutes an assessment of existing devices and does not mean ALL cross connections on the site have been addressed. Neither does it mean the existing devices are appropriate for the hazard. This must be addressed by an IQP (Survey). Cross connections are a major PUBLIC HEALTH RISK and are the owner's responsibility to ensure they are addressed.

* required entry

Appendix O4 Pressure Vacuum Breaker

BACKFLOW PREVENTION DEVICE TEST CERTIFICATE

PRESSURE VACUUM BREAKER (PVB)

Use Tab to move to next field

Building Details:

Building name:	
Block / level / unit number:	
*Street address:	
Suburb:	
Compliance Schedule No.:	
Water meter number:	

Owner:

*Name:	
Contact person:	
*Address:	
Phone number:	

Occupier:

Business name:		Type of business:	
*Contact person:		*Phone number:	

Device Details:

Protection:	Individual source ☐	Zone ☐	Boundary ☐
Location:			
Manufacturer:		Serial No.:	
Model:		Nominal Size:	mm
Installation correct:	Yes ☐ No ☐	Strainer installed:	Yes ☐ No ☐
Comments on installation:			

Test Details:

Test kit serial number:			Calibration date:		
	Check valve		Air inlet valve		Downstream isolating valve
Initial test:	opened ☐	did not open ☐	opened ☐	did not open ☐	tight ☐ leaked ☐
Pressure reading:	kPa		kPa		
Test after repairs:	opened ☐	did not open ☐	opened ☐	did not open ☐	tight ☐ leaked ☐
Pressure reading:	kPa		kPa		
Repairs and materials used (if applicable):					

Comments:

Test Result: **Pass** ☐ **Fail** ☐ Test method:

Tester Details:

Name of tester:		Company name:	
IQP No:		Company address:	
Signature:			
Date of test:			

NOTE: This test report only constitutes an assessment of existing devices and does not mean ALL cross connections on the site have been addressed. Neither does it mean the existing devices are appropriate for the hazard. This must be addressed by an IQP (Survey). Cross connections are a major PUBLIC HEALTH RISK and are the owner's responsibility to ensure they are addressed.

* required entry

Appendix O5 Atmospheric Vacuum Breaker

BACKFLOW PREVENTION DEVICE TEST CERTIFICATE

ATMOSPHERIC VACUUM BREAKER (AVB)

Use Tab to move to next field.

Building Details:

Building name:	
Block / level / unit number:	
*Street address:	
Suburb:	
Compliance Schedule No.:	
Water meter number:	

Owner:

*Name:	
Contact person:	
*Address:	
Phone number:	

Occupier:

Business name:		Type of business:	
*Contact person:		*Phone number:	

Device Details:

Protection:	Individual source ☐	Zone ☐	Boundary ☐
Location:			
Manufacturer:		Serial No.:	
Model:		Nominal Size:	mm
Installation correct:	Yes ☐ No ☐	Strainer installed:	Yes ☐ No ☐
Comments on installation:			

Test Details:

	Poppet closed when pressure increased	Poppet opened when pressure decreased
Initial test:	Yes ☐ No ☐	Yes ☐ No ☐
Test after repairs:	Yes ☐ No ☐	Yes ☐ No ☐
Repairs and materials used (if applicable):		

Comments:

Test Result: **Pass** ☐ **Fail** ☐ Test method:

Tester Details:

Name of tester:		Company name:	
IQP No:		Company address:	
Signature:			
Date of test:			

NOTE: This test report only constitutes an assessment of existing devices and does not mean ALL cross connections on the site have been addressed. Neither does it mean the existing devices are appropriate for the hazard. This must be addressed by an IQP (Survey). Cross connections are a major PUBLIC HEALTH RISK and are the owner's responsibility to ensure they are addressed.

* required entry

Appendix O6 Hose Connection Vacuum Breaker

BACKFLOW PREVENTION DEVICE TEST CERTIFICATE

HOSE CONNECTION VACUUM BREAKER

Use Tab to move to next field.

Building Details:

Building name:	
Block / level / unit number:	
*Street address:	
Suburb:	
Compliance Schedule No.:	
Water meter number:	

Owner:

*Name:	
Contact person:	
*Address:	
Phone number:	

Occupier:

Business name:		Type of business:	
*Contact person:		*Phone number:	

Device Details:

Protection:	Individual source ☐	Zone ☐	Boundary ☐
Location:		Pass ☐	Fail ☐
		Pass ☐	Fail ☐
		Pass ☐	Fail ☐
		Pass ☐	Fail ☐
		Pass ☐	Fail ☐
		Pass ☐	Fail ☐
		Pass ☐	Fail ☐

Installation: Atmospheric vacuum breaker connected to hosetaps as a backflow prevention device.
Device shall vent through atmospheric ports with 1m head water column. Visual inspection

Comments:

Tester Details:

Name of tester:		Company name:	
IQP No:		Company address:	
Signature:			
Date of test:			

NOTE: This test report only constitutes an assessment of existing devices and does not mean ALL cross connections on the site have been addressed. Neither does it mean the existing devices are appropriate for the hazard. This must be addressed by an IQP (Survey). Cross connections are a major PUBLIC HEALTH RISK and are the owner's responsibility to ensure they are addressed.

NOTES

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