BRANZ REPORT

T990

Testing Combi-Siphon Air Admittance Trap to EN12380.2:2001



THE RESOURCE CENTRE FOR BUILDING EXCELLENCE



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Air Admittance Trap
to EN12380.2:2001

Author:

Victoria Braham

Plumbing Test Facility Manager

Reviewer:

Roger Stanford Technician, Physics

Building Research Association of New Zealand (BRANZ)

Moonshine Road, Judgeford Porirua City 6220, New Zealand

Private Bag 50908 Porirua City, New Zealand

Ph: +64 4 235 7600 Fax: +64 4 235 6070 Contact: Victoria Braham Ph(DDI): +64 4 238 1377

Email: branzvjb@branz.org.nz

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TESTING COMBI-SIPHON AIR ADMITTANCE TRAP TO EN12380.2:2001

1. CLIENT

Studor 293 Victoria Avenue Wanganui New Zealand



Three Studor 'Combi-Siphon' Air Admittance Traps (AAT) were provided to BRANZ for testing to prEN 12380.2:2001 (excluding Clause 6.6, 'Test for effectiveness at temperatures below zero'). The BRANZ sample numbers were as follows; D2649, D2650 and D2651.

All traps were shown to meet these performance requirements of the standard.

3. TEST METHOD

The test methods are in accordance with the relevant clauses of prEN 12380.2:2001.

4. RESULTS

Clause 6.1 General Procedure

All testing was carried out at room temperature (unless otherwise specified).

Clause 6.2 Drop Test

The valve shall show no signs of deformation or breakage which may affect the functioning.

Table 1

| Height above ground (1 to 1:02 m) | · 1 m | 1 m | 1 m |
|---|-------|-----|-----|
| Any signs of deformation or breakage that may affect the functioning? | No | No | No |

Clause 6.3 Airtightness Test

The apparatus was airtight to 10 kPa (tested with a plug fitted). The average air temperature was 23.5°C.

Table 2

| Sample D2649 | Original pressure (Pa) | Pressure after 5 minutes (Pa) | % change in pressure |
|--------------|---------------------------|----------------------------------|----------------------|
| 30.Pa | 30 | 30 | 0 |
| 500 Pa | 498 | 498 | 0 |
| 10 kPa | 10202 | 9418 | 7.7 |





Table 3

| Sample D2650 | Original pressure (Pa) | Pressure after 5 minutes (Pa) | % change in pressure |
|--------------|---------------------------|----------------------------------|----------------------|
| 30 Pa | 30 | 30 | 0 |
| 500 Pa | 498 | 498 | 0 |
| 10 kPa | 10104 | 9967 | 1.4 |

Table 4

| Sample D2651 | Original pressure (Pa) | Pressure after 5 minutes (Pa) | % change in pressure |
|--------------|---------------------------|----------------------------------|----------------------|
| 30 Pa | 30 | 30 | 0 |
| 500 Pa | 523 | 511 | 2.3 |
| 10 kPa | 10026 | 9888 | 1.4 |

The trap tested passed all of the requirements of Clause 6.1. However, it was found that the trap had to be kept in a controlled environment during testing in order for the air tightness test at 30 Pa to be met. Any disturbance in air temperature or pressure would cause the trap to fail the air tightness test.

Clause 6.4 AAV Endurance and Temperature test

The apparatus was airtight to 10 kPa (tested with a plug fitted).

Table 5

| | Clause 6.4.2.1 | Clause 6.4.2.1 (b) |
|------------------------------|----------------|--------------------|
| « Valve class | Class 1 | Class 1 |
| Temperature environment (°C) | 24 | 60 |

Table 6 Airtightness test repeated after endurance testing in an air temperature of 15° to 25°C

| Sample D2649 | Original pressure (Pa) | Pressure after 5 minutes (Pa) | % change in pressure |
|--------------|---------------------------|----------------------------------|----------------------|
| 30 Pa | 30 | 30 | 0 |
| 500 Pa | 523 | 523 | 0 |
| 10 kPa | 10379 | 9771 | 5.9 |

Table 7 Airtightness test repeated after endurance testing in an air temperature of 60° C ($\pm 2^{\circ}$ C)

| Sample D2649 | Original pressure (Pa) | Pressure after 5 minutes (Pa) | % change in pressure |
|--------------|------------------------|----------------------------------|----------------------|
| 30 Pa | 32 | 32 | 0 |
| 500 Pa | 548 | 536 | 2.2 |
| 10 kPa | 10183 | 9967 | 2.1 |

Following the endurance testing the air tightness tests were carried out in reverse order i.e. 10 kPa, 500 Pa, 30 Pa.





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Clause 6.5 Test to determine Opening Characteristic and Airflow Capacity

Table 8

| Sample # | D2649 | D2650 | D2651 |
|--|-------|-------|-------|
| Approximate 'Opening pressure' (Pa) | -60 | -60 | -58 |
| Airflow rate (-260 to -240 Pa) | -250 | -252 | -254 |
| Determined 'air flow capacity' (L/sec) | 2.6 | 2.6 | 2,6 |
| Reduced air flow rate (-160 to -140Pa) | -150 | -146 | -150 |
| Mean flow rate across pipe (L/sec) | 1.8 | 1.7 | 1.8 |
| Test criteria met y/n? | yes | yes | yes |

Clause 6.5.3 Criteria

- a) Opening pressures varied between 0 and -150 Pa
- b) Determined 'Airflow Capacity' = 2.6 L/sec
- c) A measurable flow rate is maintained







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Moonshine Road, Judgeford
Postal Address – Private Bag 50908, Porirua City
Telephone – (04) 235-7600, Fax – (04) 235-6070
Internet – http://www.branz.org.nz
E-mail – postmaster@branz.co.nz

NEW ZEALAND OFFICES

AUCKLAND

Telephone – (09) 303-4902 Fax – (09) 303-4903 The Building Technology Centre Victoria Park, 17 Drake Street PO Box 90524, Auckland Mail Centre

CHRISTCHURCH

Telephone – (03) 366-3435 Fax – (09) 366-8552 GRE Building 79-83 Hereford Street PO Box 496

AUSTRALIAN OFFICE

Telephone – (00612) 8339 1881 Fax – (00612) 8339 1884 Unit 32, 56 O'Riordan Street Alexandria, NSW 1460, Australia PO Box 323, Mascot, NSW 1460