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Performance Requirements for Individual and Branch Type Air Admittance Valves for Sanitary Drainage Systems

Section I

1.0 General

1.1 Application

Individual and Branch Type Air Admittance Valves (AAVs) for Sanitary Drainage Systems (herein referred to as “device”) are devices used in plumbing drainage systems to prevent the siphonage of water trap seals. These devices do not relieve back pressure; they only allow air to enter the system. These devices are designed to be used for individual fixtures or for a horizontal branch serving multiple fixtures. When these devices are installed in a building, there shall be at least one (1) open vent terminal to relieve positive pressure which extends to the atmosphere outside of the building serving the building drain on which these devices are installed.

1.2 Scope

1.2.1 Description

These devices consist of a one-way valve designed to allow air to enter the plumbing drainage system when a pressure less than atmospheric develops. The device closes and seals by gravity under (0) differential pressure (static condition) and under positive pressure. These devices prevent sewer gases from entering the building. The device consists of a hooded or shielded body which contains a movable sealing assembly which seats and seals air flow when closed and allows air to enter when open.

1.2.2 Temperature Range

These devices shall function at temperatures from -40.0°F to 150.0°F (-40.0°C to 65.6°C).

1.2.3 Rating

These devices shall be rated to pass the air rate indicated in Table 1 without exceeding a pressure drop greater than 1.0 inch (25.4 mm) of water column.

Table 1

Drainage Pipe Size		Maximum DFU's	Airflow Rate	
IPS	DN		CFM	L/s
inch	mm			
1¼	32	1	1	0.47
1½	40	3	1	0.47
2.0	50	6	2	0.94
3.0	75	20	4	1.88
4.0	100	160	8	3.76

1.3 Construction

1.3.1 Air Inlet Shields

Air inlets of the device shall be shielded to prevent inlet fouling. Air inlet shields shall extend down the body of the device, over the sealing membrane, to the lowest portion of the sealing membrane, and shall maintain a minimum of 1/16 inch (1.6 mm) clearance between the inner lower edge of the shield and the lowest surface of the air opening of the sealing membrane.

1.3.2 Leakage

The device and joining methods shall not permit air leakage when pressurized up to 30 inches (762.0 mm) water column.

1.3.3 Interference

The end connection of the device shall be designed so that when installed, the joint shall not interfere with any moving parts of the device or restrict air passageways.

1.3.4 Connections

1.3.4.1 Threads for AAVs

For all plastic devices having taper pipe threads for connection to the drainage system, threads shall conform to the requirement of ASTM Specification F 1498. Metallic threads shall conform to the requirements of ASME B1.20.1.

1.3.4.2 Hubless Connectors

Hubless connectors shall comply with ASTM C-564(3), CSA B602(4), or FM 168(5).

1.3.4.3 Dimensions and Tolerances for AAV Sockets

Sockets on the device shall conform to the applicable material requirements. Devices having sockets for connection made from ABS material shall conform to the requirements of ASTM Specification D 2661, with the exception of wall thickness. Devices having sockets made from PVC material shall conform to the requirements of ASTM Specification D 2665, with the exception of wall thickness.

1.3.4.4 Other Connections

Where types of connections other than connections specified in Sections 1.3.4.1, 1.3.4.2, and 1.3.4.3 are provided with the device, the connection shall meet the applicable material requirements and the total assembly shall comply with the performance tests in this standard.

1.4 Reference Standards

References to industry standards shall mean the latest edition.