

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS OF TESTING SMOKE/HEAT RELEASE VENTS

AS 2428.1

DETERMINATION OF RESISTANCE TO LEAKAGE DURING RAIN

1 SCOPE. This standard sets out the method for determining the resistance of a smoke/heat release vent leakage during rain.

2 REFERENCED DOCUMENT. The following standard is referred to in this standard:

AS 2428.2 Methods of Testing Smoke/Heat Release Vents — Determination of Ability to Operate Under Wind Loading.

3 PRINCIPLE. The smoke/heat release vent is mounted in a section of roof and subjected to an airstream into which water has been introduced to simulate wind-blown rain. The vent is monitored visually from inside the roof for signs of water penetration. The maximum wind velocity at which the vent resists the entry of water, i.e. the rain leakage wind velocity v_r , is determined.

4 APPARATUS. The following apparatus is required:

- (a) A wind machine having a propeller of a diameter not less than 3900 mm, for producing an airstream or wind. The wind velocity shall be measured 11 ± 1 m upstream from the nearest part of the specimen.
- (b) A system of 72 spray nozzles fixed in a rectangular grid pattern of —
 - (i) 12 horizontal rows each spaced 450 mm apart; and
 - (ii) 6 vertical rows 610 mm apart.

This system shall be located 8.800 m from the wind-speed measuring device and with the centre of the grid of nozzles on the centreline of the airstream. The system shall introduce water into the airstream at a rate of 1.6 L/s or 2.5 L/s, whenever required.

- (c) A roof panel of variable slope or pitch, capable of rotating horizontally so that the axis of titling can be set either normal or parallel to the airstream (see Fig. 1). The space between the roof panel and the ground or floor below shall be enclosed with solid construction that —
 - (i) is sealed to the ground or floor and to the underside of the roof panel so as to prevent the entry of water;
 - (ii) is sealed at any joint and at the corners to prevent the entry of water; and
 - (iii) has the leeward side open for access.

5 SIZE OF SPECIMEN. The test specimen shall be full size, except that where any dimension of the full-sized vent exceeds that which can be accommodated by the test equipment, a specimen of the largest practicable size agreed by the testing laboratory and, where applicable, the Certification Body, shall be tested.

6 MOUNTING. The vent shall be mounted in the roof panel in the same orientation with respect to the roof slope as is intended for its installation in a building, and shall be waterproofed and supported around the outside perimeter in the same manner and by the same fixings as are intended for its installation in the building structure.

7 PROCEDURE. The procedure shall be as follows:

NOTE: It may be convenient for the tests described in AS 2428.2 to be conducted concurrently with those described herein.

- (a) With the vent at the windward side, set the roof panel —