

Australian Standard™

AS 4046.8

Methods of testing roof tiles

Method 8: Adhesive mechanical fasteners— Flexible pointing

1 SCOPE

This Standard sets out the method for testing flexible pointing to determine its suitability for use as an adhesive flexible pointing after conditioning by prolonged water saturation. This Standard does not cover products that combine flexible bedding and pointing in one application.

2 PRINCIPLE

The flexible pointing is tested in its weakest condition after prolonged water saturation. The test ridge assembly is cyclically loaded to ensure that it is able to withstand without failure the fatigue loading sequence as described in Clause 6.

3 REFERENCED DOCUMENT

The following documents are referred to in this Standard:

AS

1316 Masonry cement

1672 Limes and limestones

1672.1 Part 1: Limes for building

3972 Portland and blended cements

4 BEDDING ADDITIVES

The flexible pointing manufacturer shall specify to the testing laboratory what, if any, bedding additives are to be used with the flexible pointing product when carrying out the test.

5 APPARATUS AND MATERIALS TO CYCLICALLY LOAD A TEST ROOF

The following apparatus and equipment are required:

- (a) A pressure chamber of adequate length and breadth to accommodate the test roof segment.
- (b) A test roof segment (see Figure 1) that is a minimum of five ridge tiles in length and four rows of tiles in width, set to a pitch of 18° and comprising rafters spaced at 600 mm intervals, appropriately spaced battens, four rows of tiles (two either side of the ridge).

Roof tiles shall be new glazed terracotta tiles. Previously used or second hand tiles shall not be used. Ridge tiles shall be new and previously unused and shall be of a glazed terracotta variety (not embossed edge).

The testing laboratory shall ensure that the bedding mortar for all ridge tiles in the test assembly have a sand to cement mix of 4:1. The mix shall be cement in accordance with AS 1316 or AS 3972 and the sand in accordance with AS 1672. The mortar bedding shall be 50 ± 10 mm wide with a finished height of 25 ± 5 mm to the underside of the ridge, to be laid with the use of a jig to ensure uniformity and repeatability.

The test roof segment shall be sealed into the pressure chamber in a manner that enables adequate pressure gain in the apparatus. This may necessitate sealing the joints in the tiles with a flexible sealant and sealing the perimeter of the test roof against the walls of the pressure chamber.

- (c) A means of cyclically pressurizing the apparatus with air, counting the cycles and measuring the pressure gain in the apparatus to an accuracy of $\pm 1\%$ of the full scale.

6 CONDITIONING OF THE TEST ROOF SEGMENT

The test roof specimen shall be air-cured for 28 d before conditioning. The test roof specimen shall be conditioned by a continuous water spray for a minimum of 72 h at a rate not less than $0.05 \text{ L/m}^2/\text{s}$ immediately preceding and during the test. The water spray shall fully soak all exposed adhesive material. The area used to calculate the water spray rate shall include the ridge tiles and one row of the tiles either side of the ridge tiles.

7 PROCEDURE

The test roof specimen shall be subjected to the fatigue loading sequence specified in Table 1. The single load cycle shall be held for 1 min. The rate of load cycling shall not exceed 3 Hz.

NOTE: In practice there can be difficulty in reducing the lower limit to zero. A small force may be considered satisfactory as the lower limit, provided it does not exceed 10% of the upper limit of the same load cycle.

TABLE 1
FATIGUE LOADING SEQUENCE

Range of test pressure, P_d (kPa)	Number of cycles
0 to 0.40	8 000
0 to 0.50	2 000
0 to 0.65	200
0 to 1.00	1

where

P_d = the ultimate limit state design pressure

8 ACCEPTANCE CRITERION

The test fails when the ridge tile dislodges or breaks and the pressure on the test rig fails. The test shall be repeated if the test rig pressure failed because of perimeter seals or other causes other than test sample failure.

9 REPORT

The report shall include the following:

- (a) A description of the adhesive fastener, the manufacturer's name, batch number, and date of manufacture.
- (b) A description of test sample such as thickness of application, collars or cuffs etc.

- (c) A description of the test conditions including the steps for calculation of test pressures.
- (d) A description of the test apparatus including a cross-sectional diagram or photograph.
- (e) A description of all, if any, bedding additives used including proportions of mix.
- (f) A table of the cycle loading sequence.
- (g) The result of the test, pass or fail, for the flexible pointing material determined by this test.
- (h) The number of this Australian Standard, i.e., AS 4046.8.

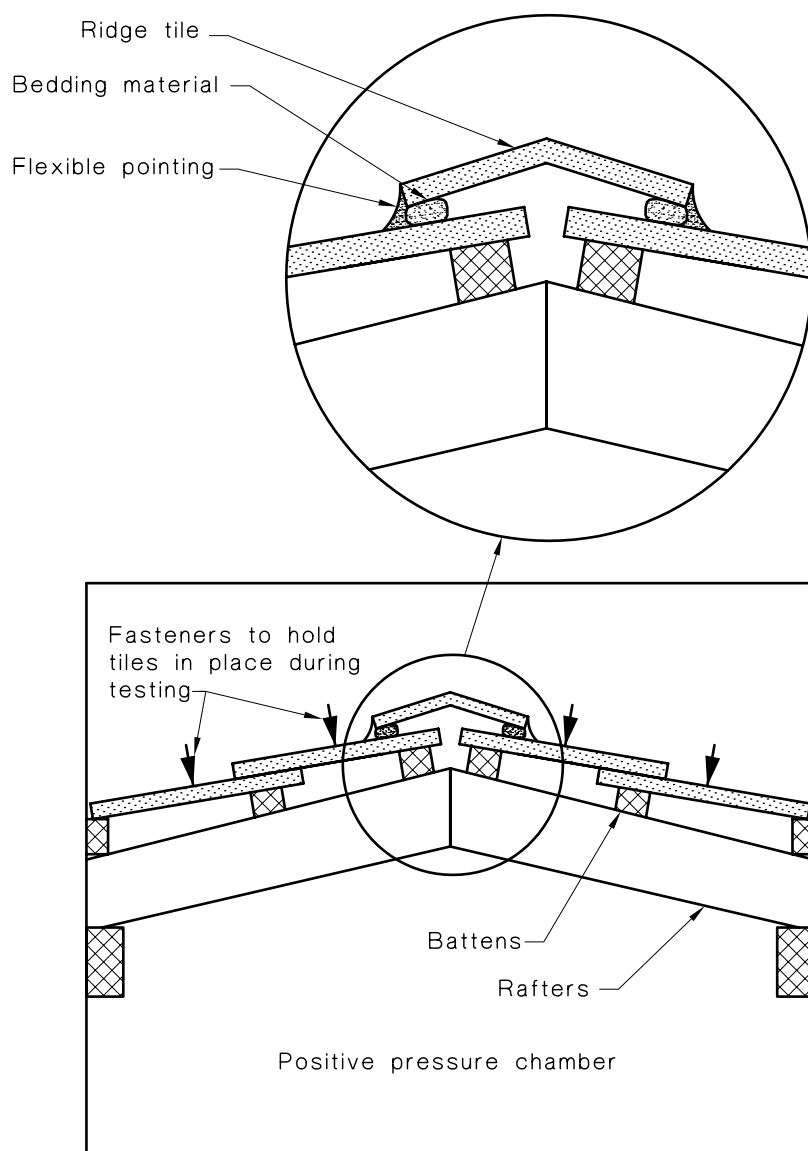


FIGURE 1 TEST ROOF SEGMENT ASSEMBLY