Australian Standard®

Methods of testing sheet roof and wall cladding

Method 1: Resistance to concentrated loads

METHOD

1 SCOPE This Standard sets out a test method for determining the resistance of sheet roof and wall cladding to concentrated loads.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS
1170 Minimum design loads on structures
1170.1 Part 1: Dead and live loads and load combinations

1562 Design and installation of sheet roof and wall cladding
1562.1 Part 1: Metal

4040 Methods of testing sheet roof and wall cladding
4040.0 Part 0: Introduction, list of methods and general requirements

3 PRINCIPLE Concentrated loading is applied to the test specimen to determine the deflection of the cladding and the performance of the fastenings.

4 APPARATUS

4.1 Supporting structure The supporting structure shall be as specified in AS 4040.0

4.2 Loading system Concentrated load shall be applied in a direction normal to the roof through a circular loading pad of rubber or similar material 100 ±2 mm in diameter and 50 ±2 mm in thickness. The loading pad shall have a Shore durometer hardness of 30 ±3.

The load shall be transmitted to the rubber pad through a disc of steel, 100 ±2 mm in diameter and not less than 10 mm in thickness.

NOTE: The 50 mm thickness of rubber may be made up of an appropriate number of layers 10 mm or greater thickness. The layers need not be cemented together, but each should be of the correct diameter and hardness.

4.3 Measuring devices Deflections shall be determined by means of a device capable of measuring to an accuracy of not less than ±0.05 mm. Pressures or loads shall be determined to an accuracy of not less than 5%.

NOTE: An accuracy of 5% would normally be achieved by means of a device capable of measuring to an accuracy of ±1% of full scale.

5 TEST SPECIMEN The test specimen shall be as specified in AS 4040.0.

6 PROCEDURE

6.1 Loading

6.1.1 *General* As specified in AS 1170.1, the concentrated loads are as follows:

(a) Flat roofs: 1.1 kN concentrated in any position.

(b) Sloped roofs: 0.5 kN concentrated in any position.

NOTE: For the purpose of this Standard, Item (b) is considered to apply to a roof with a slope greater than 35 degrees.

6.1.2 *Load factors for concentrated loads* To determine design loads for test purposes the concentrated loads given in Clause 6.1.1 shall be multiplied by the following factors:

(a) For serviceability limit state: 0.7.

(b) For strength limit state: 1.5.