Australian/New Zealand Standard®

Methods of testing sheet roof and wall cladding

Method 4: Resistance to impact (sandbag) for sheet roof materials

METHOD

1 SCOPE This Standard sets out the method of test intended to simulate the accidental falling of a person onto a plastic building sheet incorporated into a roof structure.

2 REFERENCED DOCUMENT The following document is referred to in this Standard:

AS
3567 Textiles — Cloth, duck — Cotton and polyester/cotton

3 PRINCIPLE A sandbag is dropped from a height of 2.5 m onto a supported test specimen of building sheet to determine impact resistance.

4 APPARATUS

4.1 Sandbag A bag made from polyester/cotton core-spun duck complying with the requirements for Grade CS 420 (420 g/m^2) of AS 3567. The sandbag shall have the following properties:

(a) Cylindrical shape of diameter, 300 ±50 mm and height, 700 mm with stitching on the inside.

(b) One end stitched to a circular base and the open end fitted with a hem and cord so that it can be drawn closed.

(c) Filled with dry sand to provide a mass of 25 kg.

(d) Rope attached to the top.

4.2 Pulley A pulley attached to a suitable support, so that the bag may be raised 2.5 m above the test specimen, using a rope to which the cord of the sandbag is tied.

4.3 Measuring stick A measuring stick of 2.5 ±0.01 m used to check the height of drop from the top of the test specimen to the bottom of the sandbag.

5 TEST SPECIMEN The test specimen shall consist of a full scale model of sections of a fixed roof with at least three interlocking sheets of the plastic material under test incorporated into the model, the centre sheet being the test sheet.

The test model shall incorporate four purlins or studs or battens, with the test sheet overlapping the supporting members on at least one end by not greater than the maximum unsupported overhang specified in Table 1.

The fixings, frequency and type will be in accordance with the manufacturer's recommendations, incorporating clearance holes where these are normally specified for the product under test.

TABLE 1
UNSUPPORTED OVERHANG

Sheet type	Maximum unsupported overhang, mm
GRP	150
PVC	50
Polycarbonate	50

6 PROCEDURE The test procedure is as follows:

(a) Roll the sandbag to loosen the sand before each test.

(b) Position the sandbag and hoist in relation to the test specimen so that the centre of the base of the sandbag strikes the specimen midway between crests approximately in the centre of the test sheet and 300 mm from the edge purlin or stud (see Figure 1). This position of impact is checked by lowering the sandbag to rest gently on the test specimen.

(c) Raise the sandbag to the drop height of 2.5 m, and check the height.

(d) Release the pulley rope so that the sandbag impacts on the test specimen.

(e) Assess the result and if the test specimen is considered to have failed, repeat the procedure varying (b) by positioning the sandbag and hoist in relation to the test specimen so that the centre of the base of the sandbag strikes the specimen midway between crests approximately in the centre of the test sheet and 300 mm from an intermediate purlin, or stud, in the centre span (see Figure 1). This position of impact is checked by lowering the sandbag to rest gently on the test specimen.

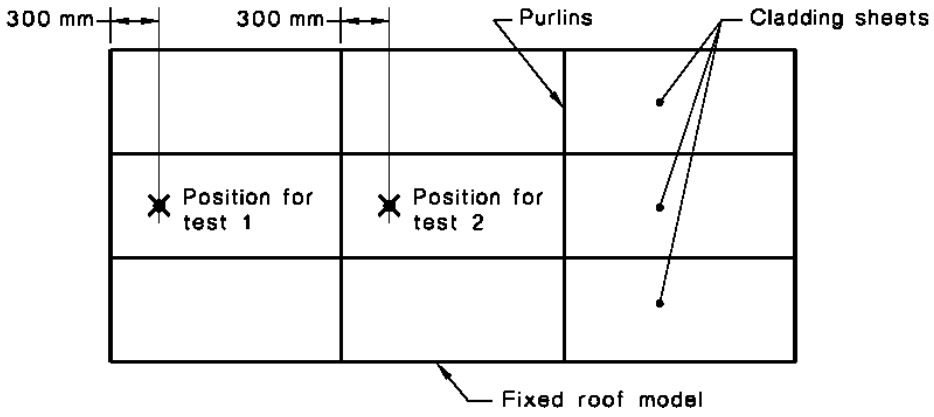

FIGURE 1 TEST POSITIONS