



THATCH & COMBUSTIBLE ROOFS

Large-scale fire test of Fire Retardant Treated thatch roofs

- 🔥 The basis to be used in the large-scale fire evaluations is SANS 10177-12 adopted from the American Standard Test Method (ASTM) E 108 test protocol. These methods include the testing of the different relative force characteristics of roof coverings under conditions simulating a fire originated outside the buildings. These tests are applicable to roof coverings which are intended for installations on either combustible or non-combustible decks. Therefore, this standard method is also appropriate for thatch roofs.



SANS 10177-12 (Roof test)



- ❖ The restrictions (safety distances) related to thatch roofs is as a result of the radiant heat exposure from a thatch roof in the event of a fire. It is therefore of major importance that the fire protection system used on the roof change the fire properties of the combustible roofing material. In terms of the National Building Regulations an appropriate safe distance is required between structures to prevent or protect the adjacent building or structure. This is also important for buildings erected on the same premises such as Town Houses and similar where also “notional” boundaries needs to be considered. The use of an appropriate fire retardant system on a thatch roof would also protect the roof from any associated dangers against the ease of ignition and subsequent spread of fire on a roof. Fire retardant systems for thatch roofs could either be pre-treated or post-treated which may have specific maintenance or re-application requirements.
- ❖ Should a fire retardant system be selected, the testing should also include the appropriate weathering (rain) test to determine maintenance and re-application intervals.
- ❖ The tests include:
 - » Intermittent flame exposure test
 - » Spread of flame test
 - » Burning brand test
 - » Flying brand test
- ❖ A roof not restricted for use on non-combustible decks, the spread of flame, intermittent flame and burning brand tests are required. The flying brand test is performed only if necessary.



Fire exposure classes

Three classes of fire test exposure are described by the protocol used in Buildings Part 2:

Class A

Tests are applicable to roof coverings that are effective against severe test exposure, afford a high degree of fire protection to the roof deck, do not slip from position and do not present a flying brand hazard.

Class B

Tests are applicable to roof coverings that are effective against moderate test exposure, afford a moderate degree of fire protection to the roof deck, do not slip from position and do not present a flying brand problem.

Class C

Tests are applicable to roof coverings that are effective against light test exposure, afford a light degree of fire protection to the roof deck, do not slip from position and do not present a flying brand problem.



Conditions of classification for fire tests of roof coverings

The following conditions must be met by a roof covering when subjected to the particular class of fire tests:

- 🔥 At no time during or after
 - » The intermittent flame test
 - » The spread of flame test
 - » The burning brand test, should
 - Any portion of the roof covering material be blown off or fall off the test specimen in the form of flaming or glowing brands that continue to glow after reaching the floor, or
 - The roof deck be exposed, or
 - Portions of the roof specimen fall away in the form of particles that continue to glow after reaching the floor
 - 🔥 At no time during the Class A, B and / or C intermittent flame test or the Class A or B burning brand test should there be sustained flaming of the underside of the specimen.
 - 🔥 If flaming does occur, a new series of tests must be performed where no sustained flaming should occur during the tests.
 - 🔥 The classification (Class A, B and C) of roof during a test is as follows during the spread of flame test:
 - » Class A - flaming not more than 1.8 m,
 - » Class B – flaming not more than 2.4 m, and
 - » Class C - flaming not more than 4.0 m.
- Spread of flame test is only relevant to the use of combustible material on top of a non-combustible substrata (waterproofing material).
- 🔥 Furthermore, there should be no significant lateral spread of flame from the path directly exposed to the test flame.
 - 🔥 During the flying brand test there should be no flying, flaming brands, nor any particles that continue to glow after reaching the floor.



FIRELAB



Treated Thatch



Untreated Thatch