

ASTM E-108 Test Results

- Endureed premium thatch shingles **passed** the ASTM E108 Spread of Flame test with a **Class A** Fire Rating.
- Endureed premium thatch shingles **passed** the ASTM Hail Damage test.

Here is the report:

RESEARCH REPORT
EXPLORATORY EVALUATION BY ASTM E108 FIRE TEST METHOD AND HAIL DAMAGE TESTING ON
ENDUREED FAUX THATCH ROOF SHINGLES FOR
C & H CONTRACTING PROFESSIONALS, INC.
CANNON CREEK CENTER ROAD
LAKE CITY, FL 32025

I. INTRODUCTION

C & H Contracting Professionals, Inc. (C & H) submitted samples which they designated as Endureed Faux Thatch roof shingle material for evaluation per ASTM E108 Fire Test Method and Factory Mutual Research Hail Damage testing.

The Client requested only ASTM E-108 Spread of Flame testing on the products.

The test results may not indicate the material's actual burning characteristics when field installed.

Also, the sample mounting prescribed in this test method may not produce a fire behavior representative of actual building fires.

The material tested is not manufactured under the Factory Mutual Research follow-up inspection and reexamination program; therefore, the manufacturer cannot use the Factory Mutual Research name for marking or advertising the material.

The manufacture of the test samples was not monitored by FMRC and any descriptions or designations of sample construction were supplied by the client.

The product is not Approved, except where separately listed in the Factory Mutual Approval Guide for specific end-use application.

II. MATERIALS TESTED

The Client designated the samples as:

1. Endureed Faux Thatch roof shingles.

The shingles were mechanically fastened over a layer of Soprema granulated Peel & Stick HR FR Colphene membrane to 3/4 in (19 mm) thick plywood. The nominal 5 1/2 x 10 in. (140 x 254 mm) shingles were installed with a nominal 5 in. (127 mm) exposure.

III. TEST METHOD

Tests were conducted in accordance with the Standard Method of Test for "Fire Tests of Roof Coverings", ASTM Designation E108 (96) and Factory Mutual Research Hail Damage Test Method.

3.1 ASTM E108 (96) Spread of Flame Fire Tests - The exterior fire tests were conducted in accordance with ASTM E108 (96) Fire Tests of Roof Coverings for Class A non-combustible deck test procedures. The wind velocity over the top of each sample was adjusted to 12±0.5 mph (5.4±0.2 m/s). The machine was calibrated with a "Blank" panel set at a slope of 5:12. The flame temperature was then adjusted to 14000±500F (7600±280C) for the Class A tests. The temperature was determined by a thermocouple located 1 in. (25 mm) above the surface and 1/2 in. (13 mm) toward the source of the flame from the lower edge of the "Blank" panel. Samples were tested with the flame and air current applied continuously for a period of 10 minutes. During and after application of the flame, the samples

were observed for distance of maximum flame spread, glowing brands and other damage.

3.2 FMRC Simulated Hail Damage Test

- **3.2.1** - The simulated hail damage test was conducted using the FMRC simulated hail damage test apparatus to evaluate the ability of the roof covering to withstand a hailstorm without damage to the membrane. The test criteria states that there must be no evidence of splitting or rupture of the roof cover.
- **3.2.2** - For Severe Hail (SH) resistance acceptance, a 1-3/4 in. (44 mm) diameter steel ball weighing 0.78 lbs (0.3 kg) was dropped from a 17 ft 9-1/2 in. (5.4 m) height through a 2 in. (51 mm) ID PVC tube. This procedure was repeated several times on various sections of the sample. After each drop the sample was inspected for cracks in the sample.
- **3.2.3** - A sample is further conditioned (weathered) for 1000 hrs in a fluorescent ultraviolet condensation type weathering apparatus and the impact test procedure is repeated.

IV. TEST RESULTS

The following are the ASTM E108 test results developed on Endureed Faux Thatch roof shingle material supplied by C & H. The tests were conducted July 23, 1999 under J.I. 3005047.

ASTM E108 (96) Spread of Flame testing

<u>Sample</u>	<u>Class Tested</u>	<u>Slope Tested</u>	<u>Max. Flame Spread</u>
Endureed Faux Thatch roof shingles			
Test 1	A	5 in 12	5 ft (1.5m)
Test 2	A	5 in 12	57 in (1.45m)

Factory Mutual Research - Simulated Hail Damage - ten (10) drops of the simulated hail impactor showed no signs of splitting, cracking or rupture of the roof systems before and after weathering.