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RESEARCH REPORT

EXPLORATORY ASTM E-108 AND HAIL DAMAGE EVALUATION ON GEON ENDUREED FAUX THATCH ROOF SHINGLE PRODUCTS

Prepared For:

C & H Contracting Professionals, Inc.
Cannon Creek Centre Road
Lake City, FL 32055

J.I. 3005047

Class 4472

Date: October 6, 1999

Supersedes report dated September 21, 1999

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(4472)

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EXPLORATORY EVALUATION
BY
ASTM E108 FIRE TEST METHOD AND HAIL DAMAGE TESTING
ON
GEON ENDUREED FAUX THATCH ROOF SHINGLES

for

C & H CONTRACTING PROFESSIONALS, INC.
CANNON CREEK CENTRE ROAD
LAKE CITY, FL 32055

I INTRODUCTION

C & H Contracting Professionals, Inc. (C & H) submitted samples which they designated as Geon 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) Geon 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 $1400^\circ \pm 50^\circ$ F ($760^\circ \pm 28^\circ$ C) 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

4.1 The following are the ASTM E108 test results developed on Geon 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>
Geon Endureed Faux Thatch roof shingles			
Test 1	A	5 in 12	5 ft (1.5 m)
Test 2	A	5 in 12	57 in (1.45 m)

5.2 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.

5.2.1 After 1000 hrs of UV exposure the shingles were discolored (tan color) and the leading edges showed signs of curling.

V OBSERVATIONS

The Geon Endureed Faux Thatch roof shingles met the ASTM E-108 requirements for Class A recognition at a 5 in 12 slope over noncombustible deck.

The Geon Endureed Faux Thatch roof shingles met the requirements for Factory Mutual Research Severe Hail (SH) Damage resistance.

VI LABORATORY REQUIREMENTS


Factory Mutual Research makes no judgment of product uniformity solely as a result of this evaluation. Product uniformity depends in part on manufacturing facilities and quality control procedures. Factory Mutual Research's Audit Inspection and Reexamination Program provides a means to assess these conditions.

The products tested under this program are not manufactured under Factory Mutual Research's Audit Inspection program and the composition of the samples was not verified by Factory Mutual Research.

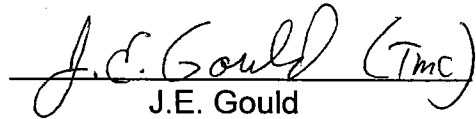
Factory Mutual makes no judgment of product suitability for its intended end-use based entirely on these test results. This decision is usually the prerogative of the local authority having jurisdiction.

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