



Celotex Corporation
Testing Services

10301 Ninth Street North
St. Petersburg, Florida 33716
(727) 578-4316
(727) 578-4280 Fax

MTS Job No.: 520397

Metro Dade Notification No.: 99232

Evaluation of

Endureed 'Thatch'

For

C & H Roofing Inc.

September 24, 1999

Handwritten signature
10-8-99

Client: C & H Roofing Inc.

MTS Job No.: 520397

Thatch Application

The Endureed 'Thatch' shingles were fastened to the test deck with 1-1/2" x 3/8" 11 gauge stainless steel annular ring shank roofing nails using six nails per each full 36" shingle. The distance between the shingle spines (head) was 5". Shingles were mitered (trimmed) to result in a closed valley. Thatch shingles were wrapped over the rake edges. The eave and step faces were covered with 4" wide plastic blocks embedded with thatch fibers. The blocks were fastened to the deck with two (2) 2" stainless steel deck screws placed every 18".

Respectfully Submitted,



Gary H. Griswold

R. H. Miller
10-8-99

Description of Underlayment And Thatch Shingle Application

September, 1999

Introduction

On behalf of C & H Roofing Inc., the Celotex Technical Center conducted a test in accordance with Protocol PA 100-95, "Wind Driven Rain Test Procedure for Discontinuous Roof Systems". This test was conducted to evaluate Endureed 'Thatch'. This test was conducted using an 8-ft. x 10-ft. plywood deck, which was constructed with a valley. The valley was built to a 2" in 12" slope and all testing was done with the deck positioned at a 2" in 12" slope. The test deck had an additional 8" high by 24" deep step added to the 8' width starting 8' from the leading edge of the test deck.

With the Celotex Technical Center providing an 8-ft. x 10-ft. plywood test deck sheathed with 3/4 CDX plywood, all roofing materials were supplied by and applied by C & H Roofing Inc. Gary H. Griswold of the Celotex Technical Center witnessed the application.

The following describes the construction of the test roof tested per Dade County Protocol PA 100-95. It should be noted that all roof components were installed per manufacturer's instructions, and the South Florida Building code (Revised 1994).

Plywood Deck

The plywood deck used in this test was constructed with 2" x 6" framing and 3/4" CDX plywood. The 2" x 6" framing, spaced 24" o.c., was fastened with galvanized deck screws. The plywood was attached to the framing using 8d bright nails spaced approximately 10" o.c. Overall deck configuration is shown on the attached drawing labeled Figure 1, which is included in Dade County's Protocol PA 100-95.

It should be noted that the test frame was recycled, all used plywood and roofing materials were removed; each test was conducted using new plywood decking.

Underlayment

A 36" wide strip of Sopralene Flam Stick SBS modified bitumen membrane was centered on the valley and adhered to the plywood test deck. A 18" wide 16 oz. Copper flashing was centered in the valley, fastened with cleats placed 12" o.c. each cleat was fastened with two 1-1/4 copper annular ring shank roofing nails. All areas of the test deck was then covered with Soprema® HR/FR Granulated Colphene self-adhering membrane which was adhered to the plywood deck over-lapping the Flam Stick SBS modified bitumen membrane and approximately 6" onto the copper valley flashing.

R. Amullee
10-8-99

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Description of Test Deck Construction

And

Thatch Application

R. H. Miller
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TEST OBSERVATIONS

PA 100-95

Client: C & H Roofing Inc.
Product: Endureed 'Thatch' Shingles

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Slope: 2" in 12" **Air Temp** 74 °F **Deck Conditioning:** Not Required
Air Velocity: 35 MPH **Simulated Rainfall:** 8.8 ins/hr **Time:** 15 min
Slight undulation of individual fibers, no significant lift. No water intrusion observed

Air Velocity: Off **Simulated Rainfall:** Off **Time:** 10 min
No water intrusion observed. All thatch relaxed to a normal position.

Air Velocity: 70 MPH **Simulated Rainfall:** 8.8 ins/hr **Time:** 15 min
Undulation of individual fibers occurring at gable, rake and step edges. Some fibers bent to 90°. No water intrusion observed.

Air Velocity: Off **Simulated Rainfall:** Off **Time:** 10 min
No water intrusion observed. All thatch relaxed to a normal position.

Air Velocity: 90 MPH **Simulated Rainfall:** 8.8 ins/hr **Time:** 15 min
Heavy undulation of individual fibers occurring at gable, rake, and steps edges. Some fibers bent beyond 120°. No water intrusion observed.

Air Velocity: Off **Simulated Rainfall:** Off **Time:** 10 min
No water intrusion observed. All thatch relaxed to a normal position.

Air Velocity: 110 MPH **Simulated Rainfall:** 8.8 ins/hr **Time:** 5 min
Very heavy undulation of individual fibers occurring at gable, rake, step edges and lift occurring in the field perpendicular to the wind stream. Some fibers bent beyond 120°. No water intrusion observed.

Air Velocity: Off **Simulated Rainfall:** Off **Time:** 10 min
No water intrusion observed. All thatch relaxed to a normal position.

Summary of Observations

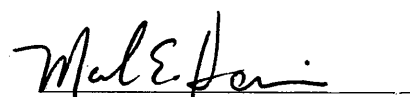
Underside of Deck: No water intrusion occurred.

Roof Top Surface: Undulation of individual fibers occurred but after the test the thatch relaxed to a normal position. (PASS)

Test Conducted by:

Approved by:


G. H. Griswold
Project Coordinator
Date: 9/17/1999


Mark E. Hennis
Research Chemist
Date: 10/5/99

R. Amullee
10-8-99

This report is for the information of the client. It may be used in its entirety for the purpose of securing product acceptance from duly constituted approval authorities; however, this report or the name of Celotex Corporation shall not be used in publicity or advertising.

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Endureed 'Thatch'

PA 100-95

Test Observations

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TEST REPORT

Test: Dade County Florida Test Protocol PA 100-95 Wind Driven Rain Test Procedure for Discontinuous Roof Systems

Client: C & H Roofing Inc.
P. O. Box 212
Lake City, FL 32056-2105

MTS Job No.: 520397
Metro Dade Notification No.: 99232

MATERIALS

Prepared Roofing

Product Type: Synthetic Thatch **Name:** Endureed 'Thatch'
Dimensions: 10" x 36"
Manufacturer: C & H Roofing Inc.
Address: P. O. Box 212 **Contact:** Abram Huber
Tel. No.: (904) 755-1102 **Fax No.:** (904) 719-6797

Underlayment Felt

Underlayment: Soprema® HR/FR Granulated Colphene self-adhering membrane.
Valley Underlayment: Sopralene Flam Stick SBS Modified Bitumen Membrane.
Manufacturer: Soprema Inc.
Address: 310 Quadral Drive Wadsworth, OH 44281

Other Materials

Nails: 11 gauge Stainless Steel Annular Ring Shank Roofing Nails
Size: 1-1/2" x 3/8"
Manufacturer: Maz Nail Corp.
Nails: 1-1/4" x 3/8" Copper Annular Ring Shank Roofing Nails
Screws: 2" Stainless Steel Square Drive
Edge Metal: 16 oz. Copper
Dimensions: 6" x 3/8"
Valley Flashing Metal: 16 oz. Copper
Dimensions: 18" wide

R. Simmler
10-8-99

Roof Construction

- Published methods for application of prepared roofing, underlayment, mastic and miscellaneous materials, if any, are to be provided by the roofing material manufacturer and/or Metro-Dade County and appended to this report.
- Method of roof deck construction is appended to this report and identified by test number and date of test.

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