

Laboratory Report 01460.12.05

**Rupture (Pull-Through) Testing
of
Fast Felt™ Roof Underlayment
in accordance with
TAS 117(B)**

**Prepared for:
LFF Systems, Inc.
11302 Memorial Drive
Houston, TX 77024**

**Date of Issuance:
December 21, 2005**



Client Information: LFF Systems, Inc
11302 Memorial Drive
Houston, TX 77024
c/o David Collins

Client Reference: Comparative Rupture Testing

ERD Reference: Project #01460.03LAB

Samples: Fast Felt™, manufactured and supplied for testing by LFF Systems, Inc., consists of an ASTM D 226, type II organic felt (30# felt) to which 1-5/8" diameter, plastic discs greater than or equal to 0.010" thick are incorporated into the 30# felt in a predetermined pattern. The integral plates are imprinted on the top side.

'Nails' are minimum 12 ga. annular ring shank, hot dip galvanized nails with minimum 3/8" diameter heads, as defined in Section 1517.5.1 of the Florida Building Code.

Sample Delivery: Fast Felt™ materials were supplied by the named client. Nails were obtained from Home Depot, Seattle, WA.

Test Date(s): December 2005

ERD Technicians: Charles Phillips

M-D Notification No.: ERD05021

Properties: Base Sheet Rupture (Pull-Over) Performance

Standards: Miami-Dade TAS 117(B), *Test Procedure for Dynamic Pull-Through Performance of Roofing Membranes Over Fastener Heads or Fasteners with Metal Bearing Plates*, © Miami-Dade Building Code Compliance Office.

Specimens: Rupture specimens are prepared in accordance with TAS 117(B) consisting of Fast Felt™ material cut to 18" x 18" squares with an integral disc positioned in the center. A nail is installed through the center of the disc and the specimen is positioned in the test apparatus.

Apparatus: Tests were conducted on the Com-Ten Model PSB0040 Universal Testing Machine to evaluate the base sheet ability to resist fastener-plate rupture (pull-through).





Test Procedure:

The fastener is installed through the center of an 18 x 18 inch specimen of the selected base sheet. For the purposes of this program, no cap sheet is installed overtop the base sheet. The specimen is inverted and clamped into place at the base of the tensile tester. A load application grip is placed on the fastener shank. The opposite end of the load application grip is connected to the load cell, which is connected to the tensile testing machine. Load is applied to the fastener shank through pulling at a rate of 2 inches per minute until failure, as defined in TAS 117(B), occurs. The load attained at the failure point is recorded. Fourteen tests are conducted for each base sheet, eliminating the 'high' and 'low' values from the final data set

Results:

Table 1: Base Sheet Pull-Through Resistance Data	
Sample	Peak Force
1	68.3
2	59.6
3	57.7
4	52.3
5	57.8
6	60.6
7	46.0 (low)
8	83.6 (high)
9	65.6
10	67.2
11	69.1
12	79.1
13	68.2
14	63.1
Average (minus 'low' and 'high'):	64.1
Std. Dev.:	7.1
Coefficient of Variation:	11%

Conclusions:

ERD has tested Fast Felt™ by LFF Systems, Inc. for rupture performance in accordance with Miami-Dade TAS 117(B). Results are as outlined herein.

Lab Compliance Statement:

The Miami-Dade TAS 117(B) testing reported herein has been conducted in full accordance with the requirements of the Florida Building Code, with no deviations.

Please contact our offices with any questions.

Sincerely,
EXTERIOR RESEARCH & DESIGN, LLC.

Charles Phillips
Laboratory Systems Manager

Robert Nieminen, P.E.
Florida Reg. No. 59166
Laboratory Technical Manager

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