



Laboratory Report L7770.01.08-2

Comparative Pull-Through Testing (“Dip Test”) of FastFelt® *in accordance with* Miami-Dade BCCO Requirements

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

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EXTERIOR RESEARCH & DESIGN, LLC.

MAIN: 80 Yesler Way • Suite 200 • Seattle, WA 98104 • P: (206) 467-0054 • F: (206) 467-5840

EAST: 353 Christian Street • Unit 13 • Oxford, CT 06478 • P: (203) 262-9245 • F: (203) 262-9243

LAB: 10 Mauney Court • Columbia, SC 29201 • P: (803) 988-8133 • F: (803) 988-8111



TL-199





CLIENT INFORMATION: LFF Systems, LLC.
11302 Memorial Drive
Houston, TX 77024
C/O: David Collins

PROJECT REFERENCE: Project #2007.L7770SC

M-D NOTIFICATION: ERD06063

SCOPE: Hot asphalt “dip” verification test for **FAST FELT®** Underlayment reinforcement tabs in accordance with Miami-Dade requirements set forth in letter dated May 16, 2007.

CLIENT SAMPLES: **FAST FELT®** is an ASTM D226, Type II roofing felt with plastic tabs pre-affixed to the top surface for use in sloped roofing applications.

SAMPLE DELIVERY: The named client shipped samples of said materials to TRINITY|ERD’s Columbia, South Carolina Laboratory, for testing.

TEST DATE(S): December 2007

ERD TECHNICIANS: Charles Phillips

PROPERTIES: Pull Through Resistance TAS 117(B)

STANDARDS: Miami-Dade Proposal Evaluation 06-0388

TAS 117(B) *Test Procedure for Dynamic Pull-Through Performance of Roofing Membranes over Fastener Heads or Fasteners with Metal Bearing Plates*, © Florida Building Code, 1995.

EQUIPMENT: Com-Ten Universal Tester

I. PULL-THROUGH RESISTANCE:

I.1 Sample Preparation:

I.1.1 A total of Fourteen (14) 18x18" samples were prepared from **FAST FELT®** Underlayment with the plastic reinforcement tab centered on each sample. A 12 gauge by 1 ¼ -inch annular ring roofing nail was then inserted into the center of the tab on each sample.

I.1.2 The samples were submerged in hot asphalt and hug up to cool for 24 hrs at approximately 73°F and 50% RH.

I.2 Procedure:

I.2.1 Each sample is installed into the testing device by clamping the **FAST FELT®** firmly to the base of the load frame with the fastener point facing up. The clamp of the testing device is secured to the fastener and an initial load is applied to remove any slack from the loading device. The fastener is then pulled through the **FAST FELT®** tab at a rate of 2 in/min. and the highest load is recorded. The high and the low values for each combination are removed and the average taken from the remaining data.

I.3 Results:

I.3.1 Results for the critical stress plate determination are outlined in Table IA, and Figure IA below.

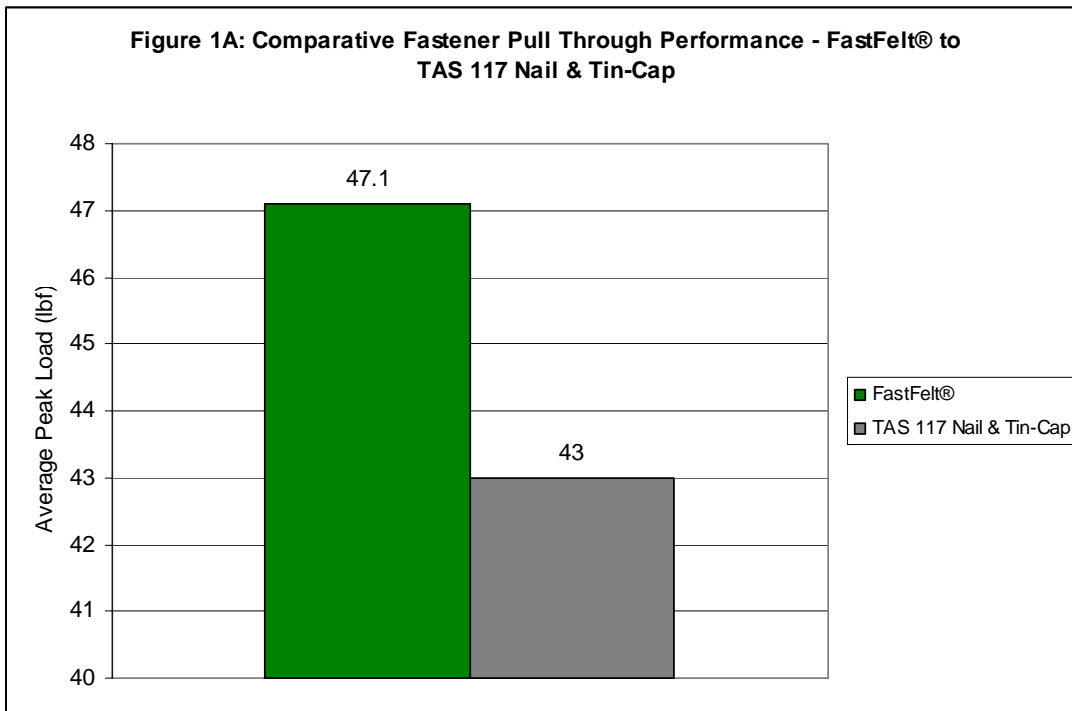


Photos 1 & 2:
Overview of FastFelt® samples prior to asphalt "dip"
Overview of Testing in Progress



Table 1A: Pull-Through Resistance FastFelt®			
Specimen #	Peak Load (lbf)	06-0388 Requirement	Pass/Fail
1	45.1	≥ 43.0 lbf	Pass
2	46.6		
3	51.0		
4	45.2		
5	54.1		
6	49.1		
7	52.1		
8	45.2		
9	48.0		
10	40.2		
11	44.2		
12	43.8		
13	45.6		
14	49.6		
Average:	47.1*		
Std Dev:	2.8		

*Note: In accordance with TAS 117(B), the highlighted 'high' and 'low' values are removed from the statistical analysis.



1.3.1.1 Review of this data indicates **FastFelt®** outperforms the standard nail & tin-cap base sheet pull-through resistance as defined by TAS 117 (B)-95. The margin of increased performance is 4.1 lbf



2. CONCLUSIONS:

- 2.1 TRINITY|ERD has tested the specimens outlined in Section 1.1 in accordance with the "Dip Test" procedure set forth in Miami-Dade Proposal Evaluation 06-0388. The specimens passed the test requirements, exceeding 43 lbf pull-through on average.

Please contact our offices with any questions.

Sincerely,
TRINITY | ERD

A handwritten signature in black ink, appearing to read "C. Phillips".

Charles Phillips
Laboratory Systems Manager

A handwritten signature in black ink, appearing to read "Robert Nieminen".

Robert Nieminen, P.E.
Vice President
Florida Reg. No. 59166

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