

Evaluation Report

"EnduraTech™ 10-011"

Spray Polyurethane Foam Roof System

Manufacturer:
NCFI Div. of Barnhardt Mfg. Co.

PO Box 1528
Mount Airy, NC 27030
(800) 346-8229

for

Florida Product Approval
FL 17023.1 R4

Florida Building Code 8th Edition (2023)

Per Rule 61G20-3

Method: 1 - D

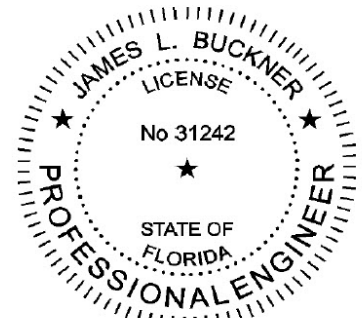
Category: Roofing

Sub - Category: Spray Applied Polyurethane Roof System

Product: "EnduraTech™ 10-011"
Description: Spray Polyurethane Foam Roof System
Support: Plywood Deck

Prepared by:
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Florida Professional Engineer # 31242
Florida Evaluation ANE ID: 1916
Report No. 23-550.01_SPS_Roof-W-ER
(Revises Report No. 20-221.01_SPS_Roof-W-ER, FL17023.1 R3)
Date: 12 / 26 / 2023

This item has been digitally signed and sealed by James L. Buckner, P.E., on this date below. Printed copies of this document are not considered signed and sealed, and the signature must be verified on any electronic copies.



James L. Buckner, P.E.
FL31242

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Manufacturer:	NCFI Div. of Barnhardt Mfg. Co.
Product Name:	EnduraTech™ 10-011
Product Category:	Roofing
Product Sub-Category	Spray Applied Polyurethane Roof System
Compliance Method:	State Product Approval Rule 61G20-3.005 (1) (d)
Product Description:	NCFI's EnduraTech™ 10-011 is a two component based spray polyurethane foam system for use as a self-adhering, seamless spray applied rigid polyurethane roofing system. EnduraTech™ 10-011 has been formulated to spray at 2.8 pcf and may be used in applications of the EnduraTech™ roofing systems.
Product Assembly As Evaluated:	Refer to Page 4 of this report for product assembly components/materials & standards: - Spray Polyurethane Foam (Spray Applied & Self Adhered) - Liquid-Applied Coating (Self-adhered)
Support Type:	Plywood Deck (Design of support is outside the scope of this evaluation)
Support Description:	• 15/32" or greater plywood, or • Support shall be in compliance with the roof sheathing requirement as described in the Code.
Slope:	Minimum slope shall be 1/4 : 12 in accordance with manufacturer's recommendations, FBC Section 1507.14.1 and applicable code sections.
Performance:	Wind Uplift Resistance * Design Uplift Pressure: - 425 psf <i>* Allowable design pressure for allowable stress design (ASD) with a margin of safety of 2 to 1.</i>
Performance Standards:	The product described herein has been tested in compliance with: • FM 4474 (11) – Evaluating the Simulated Wind Uplift Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures.
Test Equivalency:	The TAS 114-95, Appendix D standard version used to test the evaluated product assembly is equivalent with the prescribed standards in FM 4474-11, Appendix B adopted by the Florida Building Code 8th Edition (2023).

- Code Compliance:** The products described herein have demonstrated compliance with:
Florida Building Code 8th Edition (2023), Section 1504.3.1
- Evaluation Report Scope:** This product evaluation is limited to compliance with the structural wind load requirements of the Florida Building Code, as related to the scope section to Florida Product Approval Rule 61G20-3.001.
- Limitations and Conditions of Use:**
- EnduraTech™ 10-011 Spray Polyurethane Foam shall be installed by a NCFI Div. of Barnhardt Mfg. Co.'s qualified spray foam applicator trained in the processing and application of SPF systems as well as the plural component polyurethane dispensing equipment.
 - Scope of "Limitations and Conditions of Use" for this evaluation:
This evaluation report for "Optional Statewide Approval" contains technical documentation, specifications and installation method(s) which include "Limitations and Conditions of Use" throughout the report in accordance with Rule 61G20-3.005. Per Rule 61G20-3.004, the Florida Building Commission is the authority to approve products under "Optional Statewide Approval".
 - Option for application outside "Limitations and Conditions of Use"
Rule 61G20-3.005(1)(e) allows engineering analysis for "project specific approval by the local authorities having jurisdiction in accordance with the alternate methods and materials authorized in the Code". Any modification of the product as evaluated in this report and approved by the Florida Building Commission is outside the scope of this evaluation and will be the responsibility of others.
 - The Scope of this evaluation is limited to structural uplift properties.
 - This report does not evaluate the use of this product for other types of application as allowed in the code.
 - Design of support system is outside the scope of this report. Deck shall be in compliance with applicable building code.
 - Fire Classification is outside the scope of Rule 61G20-3, and is therefore not included in this evaluation.
 - This report does not evaluate the use of this product for use in the High Velocity Hurricane Zone code section. (Dade & Broward Counties)
- Quality Assurance:** The manufacturer has demonstrated compliance of roof panel products in accordance with the Florida Building Code and Rule 61G20-3.005 (3) for manufacturing under a quality assurance program audited by an approved quality assurance entity through UL, LLC (FBC Organization ID# QUA 9625).

**Product Components
Materials/ Standards:****EnduraTech™ 10-011**

Material: Polyurethane
Core Density: 2.8 pcf
Compressive Strength: 54 psi
Tensile Strength: 60 psf (or 8.640 psi)

The Physical properties listed above are presented as typical average values as determined accepted ASTM Test methods and are subjected to normal manufacturing variation.

Liquid-Applied Coatings

Material Standard: Liquid-Applied Roof Coatings in compliance with ASTM C836, ASTM C957, ASTM D1227 or ASTM D3468, ASTM D6083, ASTM D6694 or ASTM D6947.

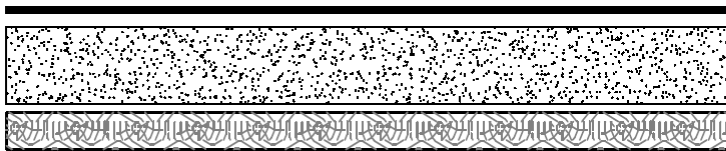
Installation:**Installation Method:**

(Refer to Page 5 of this evaluation report for Manufacturers recommended installation guidelines.)

Referenced Data:

1. TAS 114-95, Appendix D – Uplift Resistance Test
By Atlantic & Caribbean Roof Consulting, LLC
(FBC Organization #TST ID: 4671)
Report #: ACRC 14-005, Dated: 2 / 17 / 14
2. Equivalency of Test Standard Certification
By James L. Buckner, P.E. @ CBUCK Engineering (FBC Organization # ANE 1916)
3. Quality Assurance
UL, LLC, (FBC Organization #QUA ID:9625)
4. Certification of Independence
By James L. Buckner, P.E. @ CBUCK Engineering
(FBC Organization # ANE 1916)

INSTALLATION METHOD
NCIFI Div. of Barnhardt Mfg. Co.
EnduraTech™ 10-011 Spray Polyurethane Roof System



Liquid-Applied Coating

EnduraTech™ 10-011 Spray Polyurethane Foam

Plywood Deck (15/32" Min.)

General Installation Method:**Surface Preparation:**

- The plywood deck surface, intended to be sprayed with EnduraTech™ 10-011, Spray Polyurethane Foam must be clean, dry, and free of dew or frost.
- Remove sawdust and other debris from areas intended to be sprayed by blowing with compressed air or vacuuming with a shop vacuum.
- Areas not intended to be sprayed must be masked off or otherwise must be protected from overspray.

Foam Application:

- EnduraTech™ 10-011 liquid components must be dispensed at a 1:1 ratio at the temperature and pressure specified in the manufacturer's installation instruction.
- Apply EnduraTech™ 10-011 in a uniform layer to the prepared surface in multiple passes with thicknesses between 1/2 inch and 1-1/2 inches.
- The overall thickness of the finished product shall be 1 inch minimum.
- The finished foam surfaces must be smooth and free of voids, pinholes and crevices.

Protective Coating Application:

- Protective coating must be applied no less than 2 hours nor more than 72 hours following the application of the EnduraTech™ 10-011 Spray Polyurethane Foam.
- The protective coating must be applied to the spray polyurethane foam at the application rate specified in the manufacturer's installation instruction.
- The protective coating must be cured for a sufficient time as specified in the manufacturer's installation instruction prior to application of subsequent layers.

Installation shall comply with this report, applicable code sections of FBC 8th Edition (2023) (subject to the Limitations and Conditions of Use listed in this Evaluation Report) and manufacturer's installation instructions as a supplemental guide for attachment.