



City of Belle Isle

Universal Engineering Sciences 3532 Maggie Blvd., Orlando, FL 32811
Tel 407-581-8161 * Fax 407-581-0313 * www.universalengineering.com

PERMIT CARD – PLEASE POST AT JOB SITE

THIS DOCUMENT BECOMES YOUR PERMIT WHEN PROPERLY VALIDATED

Per FBC 105.3.3: An enforcing authority may not issue a building permit for any building construction, erection, alteration, modification, repair or addition unless the permit either includes on its face or there is attached to the permit the following statement: "NOTICE: In addition to the requirements of this permit, there may be additional restrictions applicable to this property that may be found in the public records of this county, and there may be additional permits required from other governmental entities such as water management districts, state agencies, or federal agencies." The issuance of this permit does not grant permission to violate any applicable City, Orange County, State of Florida and/or Federal codes and/or ordinances. Separate permits are required for Signs, Roofing, Electrical, Gas, Plumbing and Mechanical services. This permit becomes VOID if the work authorized is not commenced within 6 months, or is suspended or abandoned for a period of 6 months after commencement. **WORK SHALL BE CONSIDERED SUSPENDED IF AN APPROVED INSPECTION HAS NOT BEEN MADE WITHIN A 6 MONTH PERIOD.** PERMISSION IS GRANTED TO DO THE FOLLOWING WORK ACCORDING TO THE CONDITIONS HEREON AND THE APPROVED PLANS AND SPECIFICATIONS, SUBJECT TO COMPLIANCE WITH THE ORDINANCES OF THE CITY OF BELLE ISLE, FLORIDA.

Scope of Work: RE-ROOF: 4200 sq ft asphalt shingles

Comments: None

Project Information
Address: 2421 Hoffner Avenue, Belle Isle, FL 32809
Parcel ID: 158-23-30-7164-00-710
Property Owner: Anderson, Michael
Phone Number: none

Company Name: Pro Roofing & Associates
Contractor Name: Campos, Elmer
License Number: CCC1328416
Address: 3024 Kananwood Ct, suite 1008, Oviedo, FL 32765
Phone Number: 407 542 5903 x105

Permit Number: 2016-08-025

Date of Application: 08/15/2016

Date Permit Issued: 08/16/2016

WARNING TO OWNER: "YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOU PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT." ON THE JOB INSPECTION(S) MUST BE MADE BEFORE PROCEEDING WITH SUBSEQUENT WORK. THIS CARD MUST BE DISPLAYED OUTSIDE AND BE PROTECTED FROM THE WEATHER WHILE BEING VISIBLE FROM THE STREET UNTIL THE FINAL INSPECTIONS HAVE BEEN APPROVED.

BUILDING FEATURES

IMPACT FEES

School \$
Traffic \$

ZONING FEES

Zoning Fee \$30.00

UNIVERSAL ENG - BUILDING FEES

Cert of Occ \$
 Demo \$
 Building \$
 Fence \$
 Driveway \$
 Shed \$
 Window(s) \$
 Door(s) \$
 PrePower \$
 Electrical \$
 Temp Pole \$
 Plumbing \$
 Mechanical \$
 Gas \$
 Roofing \$105.00
 Boat Dock \$
 Screen Encl \$
 Swimming Pool \$
 Sign \$

SURCHARGE FEES

Surcharge Fee \$2.00
Surcharge Fee \$2.00

TOTAL FEES \$139.00

Date Paid 8-16-16

CC or Check # VISA 5994

Amount Paid 139.00

The person accepting this permit shall conform to the terms of the application on file and construction shall conform to the requirements of the Florida Building Code (FS 553).

BUILDING INSPECTOR USE ONLY

IF APPLICABLE:

Have Zoning Approval Conditions Been Met? YES NO Have Stormwater Approval Conditions Been Met? YES NO Silt fencing in place? YES NO Turbidity Barrier in place? YES NO

BUILDING

1st _____ (Footing/Foundation)
 Survey specific foundation plan must be onsite before slab pour. Approved Plan on Site? _____

2nd _____ (Slab)

3rd _____ (Lintel)(Wall Reinforcing on Masonry Building)

4th _____ (Exterior Framing)(Roof/Wall Sheathing)

5th _____ (Framing) (To be made after Plumbing/ Mechanical/ Electrical Rough-Ins & Windows/Doors Installed)

6th _____ (Insulation to be Made After Roof Installed)

7th _____ (Drywall)

8th _____ (Sidewalk/Driveway)

9th _____ (Other)

10th _____ (Final – After MEP and Other Applicable Finals)

ROOFING

1ST ROOFING Deck Nailing/Dry-in/Flashing _____

2nd ROOFING Covering In-Progress _____

3rd ROOFING Covering Final _____

PLUMBING (Pool-Piping, Solar, Irrigation, Water Treatment Equip, Etc...)

1ST _____ (Underground) 2nd _____ (Sewer)

3rd _____ (Rough-In/Tub Set) 4th _____ (Final)

CHECK APPROPRIATE BOX

GAS ___ Natural ___ LP MECHANICAL ELECTRICAL LOW VOLTAGE

1st _____ (Rough-In) 2nd _____ (Final)

Inspection requests are to be emailed to BIDScheduling@UniversalEngineering.com; a confirmation email will be sent back to you upon scheduling. **Next-Day Inspection requests must be made by 4pm.** Please include the following in your request: Permit #, project address, type of inspection, date of the requested inspection, a contact name & a contact phone number. AM or PM may be requested but cannot be guaranteed.

For a copy of your permit, or to check inspection results, please visit <https://universalengineering.sharefile.com>

login ID = cobi@universalengineering.com

password = universal13



City of Belle Isle

Universal Engineering Sciences 3532 Maggie Blvd., Orlando, FL 32811
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RECEIVED
AUG 15 2016

APPLICATION FOR ROOFING PERMIT

WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. A NOTICE OF COMMENCEMENT MUST BE RECORDED AND POSTED ON THE JOB SITE BEFORE THE FIRST INSPECTION. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT.

DATE OF APPLICATION: 08/15/16 ROOF PERMIT NUMBER 2016-08-025
PLEASE PRINT. The undersigned hereby applies for a permit to make installations as indicated below:

Project Address 2421 Hoffner Ave Belle Isle, FL 32809 32812

Property Owner Michael Amerson Phone _____

Property Owner's Mailing Address 2421 Hoffner Ave City Belle Isle

State FL Zip Code 32809 Parcel Id Number: 18-23-30-7164-00-710

REQUIRED! To obtain this information, please visit <http://www.ocpaff.org/Searches/ParcelSearch.aspx>

Class of Building: Old New Type of Building: Residential Commercial Other
Type of Work: New Roof ReRoof

- REQUIRED! Florida Product Approval Screen Printout from www.floridabuilding.org showing the Code Version
- REQUIRED! Florida Product Approval Installation Instructions from www.floridabuilding.org (not the manufacturer instructions)
- REQUIRED! Copies of your General Liability & Worker's Comp Insurance Certificate & State and Local Licenses

Please indicate the nature of work by completing the information below:

Roof Square Footage: 42 Number of Stories: 2 Job Valuation: \$ 16,235.00

Type: Asphalt Shingles Metal Modified Bitumen Other: _____

I hereby certify that the above is true and correct to the best of my knowledge and make Application for Permit as outlined above, and if same is granted I agree to conform to all Florida Building Code Regulations and City Ordinances regulating same and in accordance with plans submitted. The issuance of this permit does not grant permission to violate any applicable Town and/or State of Florida codes and/or ordinances. By signing below, I recognize Republic Services is by legal contract the sole authorized provider of garbage, recycling, yard waste, and commercial garbage and construction debris collection and disposal services with the city limits of the City. Contractors, homeowners and commercial businesses may contact Republic Services at 407-293-8000 to setup accounts for Commercial, Construction Roll Off, or other services needed. Rates are fixed by contract and are available at City Hall or from Republic Services. The City enforces the contract through its code enforcement office. Failure to comply will result in a stop work order.

LICENSE HOLDER SIGNATURE Elmer Campos LICENSE # CCC1328416
LICENSE HOLDER NAME Elmer Campos COMPANY NAME Pro Roofing & Associates
Street Address 3024 Kananwood CT suite # 1008
City Oviedo State FL Zip Code 32765 Phone Number 407-542-5903
Email Address office@cfproroofing.com

Building Official: ca Date 8-16-16
Verified Contractor's Licenses & Insurance are on file (SW) 8-16-16
NEARBY NOCV

Zoning Fee	\$ <u>30.-</u>
Permit Fee	\$ <u>105.-</u>
Review Fee	\$ <u>0</u>
3% Florida Surcharge	\$ <u>4.-</u>
Total Permit Fee	\$ <u>139.-</u> ✓

NOTE: The Building Permit Number is required if the Roof Installation is associated with any construction or alteration where a Building Permit has been issued.

15716
1625
25
80
105



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Product Approval
USER: Public User

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FL #	FL5444-R8						
Application Type	Revision						
Code Version	2014						
Application Status	Approved						
Comments							
Archived	<input type="checkbox"/>						
Product Manufacturer	CertainTeed Corporation-Roofing						
Address/Phone/Email	18 Moores Road Malvern, PA 19355 (610) 651-5847 mark.d.harner@saint-gobain.com						
Authorized Signature	Mark Harner mark.d.harner@saint-gobain.com						
Technical Representative	Mark D. Harner						
Address/Phone/Email	18 Moores Road Malvern, PA 19355 (610) 651-5847 Mark.D.Harner@saint-gobain.com						
Quality Assurance Representative							
Address/Phone/Email							
Category	Roofing						
Subcategory	Asphalt Shingles						
Compliance Method	Evaluation Report from a Florida Registered Architect or a Licensed Florida Professional Engineer						
	<input checked="" type="checkbox"/> Evaluation Report - Hardcopy Received						
Florida Engineer or Architect Name who developed the Evaluation Report	Robert Nieminen						
Florida License	PE-59166						
Quality Assurance Entity	UL LLC						
Quality Assurance Contract Expiration Date	07/03/2017						
Validated By	John W. Knezevich, PE						
	<input checked="" type="checkbox"/> Validation Checklist - Hardcopy Received						
Certificate of Independence	FL5444_R8_COI_2015_01_COI_Nieminen.pdf						
Referenced Standard and Year (of Standard)	<table border="0"> <tr> <td>Standard</td> <td>Year</td> </tr> <tr> <td>ASTM D3161, Class F</td> <td>2009</td> </tr> <tr> <td>ASTM D3462</td> <td>2009</td> </tr> </table>	Standard	Year	ASTM D3161, Class F	2009	ASTM D3462	2009
Standard	Year						
ASTM D3161, Class F	2009						
ASTM D3462	2009						

Equivalence of Product Standards
Certified By

Sections from the Code

Product Approval Method Method 1 Option D

Date Submitted 03/16/2015
 Date Validated 03/23/2015
 Date Pending FBC Approval 03/26/2015
 Date Approved 06/23/2015

Summary of Products

FL #	Model, Number or Name	Description
5444.1	CertainTeed Asphalt Roofing Shingles	3-tab, 4-tab, strip (no-cut-outs), laminated and architectural asphalt roof shingles
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: N/A Other: Refer to ER Section 5 for Limits of Use		Installation Instructions FL5444 R8 II 2015 03 FINAL ER CERTAINTEED Asphalt Shingle FL5444-R8.pdf Verified By: Robert Nieminen, PE PE-59166 Created by Independent Third Party: Yes Evaluation Reports FL5444 R8 AE 2015 03 FINAL ER CERTAINTEED Asphalt Shingle FL5444-R8.pdf Created by Independent Third Party: Yes

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Contact Us :: [1940 North Monroe Street, Tallahassee FL 32399](#) Phone: 850-487-1824

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Product Approval Accepts:





EXTERIOR RESEARCH & DESIGN, LLC.

Certificate of Authorization #9503

353 CHRISTIAN STREET, UNIT #13

OXFORD, CT 06478

PHONE: (203) 262-9245

FAX: (203) 262-9243

EVALUATION REPORT

CertainTeed Corporation

18 Moores Road

Malvern, PA 19355

Evaluation Report 3532.09.05-R9

FL5444-R8

Date of Issuance: 09/22/2005

Revision 9: 03/06/2015

SCOPE:

This Evaluation Report is issued under Rule 61G20-3 and the applicable rules and regulations governing the use of construction materials in the State of Florida. The documentation submitted has been reviewed by Robert Nieminen, P.E. for use of the product under the Florida Building Code and Florida Building Code, Residential Volume. The products described herein have been evaluated for compliance with the 5th Edition (2014) Florida Building Code sections noted herein.

DESCRIPTION: CertainTeed Asphalt Roofing Shingles.

LABELING: Labeling shall be in accordance with the requirements of the Accredited Quality Assurance Agency noted herein and FBC 1507.2.7.1.

CONTINUED COMPLIANCE: This Evaluation Report is valid until such time as the named product(s) changes, the referenced Quality Assurance documentation changes, or provisions of the Code that relate to the product change. Acceptance of this Evaluation Report by the named client constitutes agreement to notify Robert Nieminen, P.E. if the product changes or the referenced Quality Assurance documentation changes. Trinity|ERD requires a complete review of this Evaluation Report relative to updated Code requirements with each Code Cycle.

ADVERTISEMENT: The Evaluation Report number preceded by the words "Trinity|ERD Evaluated" may be displayed in advertising literature. If any portion of the Evaluation Report is displayed, then it shall be done in its entirety.

INSPECTION: Upon request, a copy of this entire Evaluation Report shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This Evaluation Report consists of pages 1 through 9.

Prepared by:

Robert J.M. Nieminen, P.E.

Florida Registration No. 59166, Florida DCA ANE1983



The facsimile seal appearing was authorized by Robert Nieminen, P.E. on 03/06/2015. This does not serve as an electronically signed document. Signed, sealed hardcopies have been transmitted to the Product Approval Administrator and to the named client

CERTIFICATION OF INDEPENDENCE:

1. Trinity|ERD does not have, nor does it intend to acquire or will it acquire, a financial interest in any company manufacturing or distributing products it evaluates.
2. Trinity|ERD is not owned, operated or controlled by any company manufacturing or distributing products it evaluates.
3. Robert Nieminen, P.E. does not have nor will acquire, a financial interest in any company manufacturing or distributing products for which the evaluation reports are being issued.
4. Robert Nieminen, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.
5. This is a building code evaluation. Neither Trinity|ERD nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.

ROOFING SYSTEMS EVALUATION:

1. SCOPE:

Product Category: Roofing
Sub-Category: Asphalt Shingles

Compliance Statement: CertainTeed Asphalt Roofing Shingles, as produced by CertainTeed Corporation, have demonstrated compliance with the following sections of the Florida Building Code and Florida Building Code, Residential Volume through testing in accordance with the following Standards. Compliance is subject to the Installation Requirements and Limitations / Conditions of Use set forth herein.

2. STANDARDS:

<u>Section</u>	<u>Property</u>	<u>Standard</u>	<u>Year</u>
1507.2.5, R905.2.4	Physical Properties	ASTM D3462	2009
1507.2.7.1, R905.2.6.1	Wind Resistance	ASTM D3161, Class F	2009
1507.2.7.1, R905.2.6.1	Wind Resistance	ASTM D7158, Class H	2008

3. REFERENCES:

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
UL (TST 1740)	ASTM D3161	94NK9632	05/15/1998
UL (TST 1740)	ASTM D3161	99NK26506	11/23/1999
UL (TST 1740)	ASTM D3161	03CA12702	05/27/2003
UL (TST 1740)	ASTM D3161	03CA12702	06/16/2003
UL (TST 1740)	ASTM D3161	03NK29847	10/03/2003
UL (TST 1740)	ASTM D3161	04CA11329	05/24/2004
UL (TST 1740)	ASTM D3161	04CA32986	12/03/2004
UL (TST 1740)	ASTM D3161	05NK07049	04/15/2005
UL (TST 1740)	ASTM D3161	05NK16778	05/12/2005
UL (TST 1740)	ASTM D3161	05CA16778	05/12/2005
UL (TST 1740)	ASTM D3161	05NK14836	05/22/2005
UL (TST 1740)	ASTM D3161	05NK22800	06/22/2005
UL (TST 1740)	ASTM D3462	R684	09/21/2005
UL (TST 1740)	ASTM D7158	05NK08037	06/28/2006
UL (TST 1740)	ASTM D3161 & D3462	09CA28873	07/23/2009
UL (TST 1740)	ASTM D3462	10CA41303	10/07/2010
UL (TST 1740)	ASTM D3161	10CA41303	10/08/2010
UL (TST 1740)	ASTM D7158	10CA41303	10/27/2010
UL (TST 1740)	ASTM D3161 & D3462	10CA44960	11/11/2010
UL LLC (TST 9628)	ASTM D3161, D3462 & D7158	13CA32897	11/21/2013
UL LLC (TST 9628)	ASTM D3161, D3462	TFWZ.R684	04/22/2014
UL LLC (TST 9628)	ASTM D7158	TGAH.R684	04/22/2014
UL LLC (QUA 9625)	Quality Control	Service Confirmation	Exp. 07/03/2017

4. PRODUCT DESCRIPTION:

- 4.1 CT20™, XT™ 25, XT™ 30 and XT™ 30 IR are fiberglass reinforced, 3-tab asphalt roof shingles.
- 4.2 Carriage House Shingle®, Centennial Slate™, Grand Manor Shingle®, Landmark™, Landmark™ IR, Landmark™ Pro, Landmark™ Premium, Landmark™ TL, Landmark™ Solaris and Landmark™ Solaris IR are fiberglass reinforced, laminated asphalt roof shingles.
- 4.3 Presidential Shake™, Presidential Shake™ IR and Presidential Shake TL™ are fiberglass reinforced, architectural asphalt roof shingles.
- 4.4 Hatteras™, Highland Slate™ and Highland Slate™ IR are fiberglass reinforced, 4-tab asphalt roof shingles.
- 4.5 Patriot™ is a fiberglass reinforced asphalt roof strip-shingle (with no cut-outs) providing a laminated appearance through an intermittent shadow line with contrasting blend drops for color definition.
- 4.6 Presidential Accessory, Accessory for Hatteras, Shangle Ridge™, Shadow Ridge™, Cedar Crest™ and Cedar Crest™ IR are fiberglass reinforced accessory shingles for hip and ridge installation.
- 4.7 Any of the above listed shingles may be produced in AR (algae resistant) versions.

5. LIMITATIONS:

- 5.1 This is a building code evaluation. Neither Trinity|ERD nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.
- 5.2 This Evaluation Report is not for use in the HVHZ
- 5.3 Fire Classification is not part of this Evaluation Report; refer to current Approved Roofing Materials Directory for fire ratings of this product.
- 5.4 Wind Classification:
 - 5.4.1 All shingles noted herein are Classified in accordance with FBC Tables 1507.2.7.1 and R905.2.6.1 to ASTM D3161, Class F and/or ASTM D7158, Class H, indicating the shingles are acceptable for us in all wind zones up to $V_{asd} = 150$ mph ($V_{ult} = 194$ mph). Refer to Section 6 for installation requirements to meet this wind rating.
 - 5.4.2 Presidential Accessory, Accessory for Hatteras, Shangle Ridge, Shadow Ridge and Cedar Crest hip & ridge shingles have been evaluated in accordance with ASTM D3161, Class F when BASF Sonolastic NP 1 adhesive or Henkel PL® Polyurethane Roof & Flashing Sealant, applied as specified in manufacturer's application instructions, indicating the shingles are acceptable for us in all wind zones up to $V_{asd} = 150$ mph ($V_{ult} = 194$ mph).
 - 5.4.3 Classification by ASTM D7158 applies to exposure category B or C and a building height of 60 feet or less. Calculations by a qualified design professional are required for conditions outside these limitations. Contact the shingle manufacturer for data specific to each shingle.
 - 5.4.3.1 Analysis in accordance with ASTM D7158 indicates the measured uplift resistance (R_T) for the CertainTeed asphalt roofing shingles listed in Section 4.1 through 4.5 exceeds the calculated uplift force (F_T) at a maximum design wind speed of $V_{asd} = 150$ mph ($V_{ult} = 194$ mph) for residential buildings located in Exposure D conditions with no topographical variations (flat terrain) having a mean roof height less than or equal to 60 feet.
The shingles are permissible under Code for installation in these conditions using the installation procedures detailed in this Evaluation Report and CertainTeed minimum requirements, subject to minimum codified fastening requirements established within any local jurisdiction, which shall take precedence.
- 5.5 All products in the roof assembly shall have quality assurance audits in accordance with the Florida Building Code and F.A.C. Rule 61G20-3.

6. INSTALLATION:

- 6.1 Roof deck, slope, underlayment and fasteners shall comply with FBC 1507.2 / R905.2 and the shingle manufacturer's minimum requirements.
 - 6.1.1 Underlayment shall be acceptable to CertainTeed Corporation and shall hold current Florida Statewide Product Approval, or be Locally Approved per Rule 61G20-3, per FBC Sections 1507.2.3, 1507.2.4 or R905.2.3.
- 6.2 Installation of asphalt shingles shall comply with the manufacturer's current published instructions, using minimum four (4) nails per shingle in accordance with FBC 1507.2.7 or Section R905.2.6 and the minimum requirements herein.
 - 6.2.1 Fasteners shall be in accordance with manufacturer's published requirements, but not less than FBC 1507.2.6 or R905.2.5. Staples are not permitted.
 - 6.2.2 Where the roof slope exceeds 21 units vertical in 12 units horizontal, use the "Steep Slope" directions.
- 6.3 CertainTeed asphalt shingles are acceptable for use in reroof (tear-off) or recover applications, subject to the limitations set forth in FBC Section 1510 and CertainTeed published installation instructions.

6.3.1 **CT20™, XT™ 25, XT™ 30, XT™ 30 IR:**

LOW AND STANDARD SLOPE

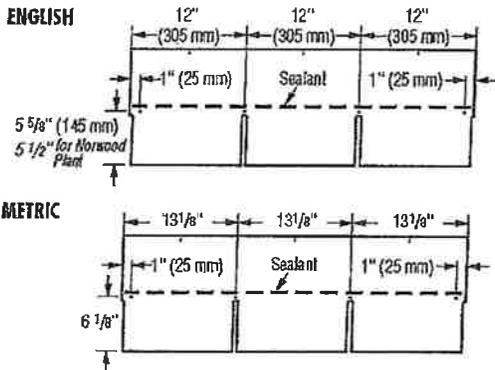
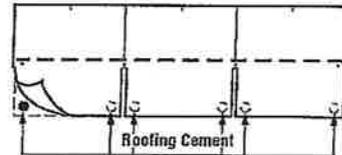


Figure 11-3: Use four nails for every full shingle.

STEEP SLOPE

Use four nails and six spots of asphalt roofing cement* for every full shingle (Figure 11-4). Asphalt roofing cement meeting ASTM D4586 Type II is suggested.



Apply 1" (25 mm) spots of asphalt roofing cement under each tab corner.

Figure 11-4: Use four nails and six spots of asphalt cement on steep slopes.

*CAUTION: Excessive use of roofing cement can cause shingles to blister.

6.3.1.1 **Hip & Ridge: Cut Shingles**

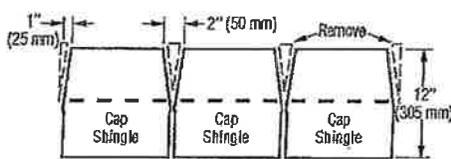


Figure 11-24: Cut tabs, then trim back to make cap shingles (English dimensions shown).

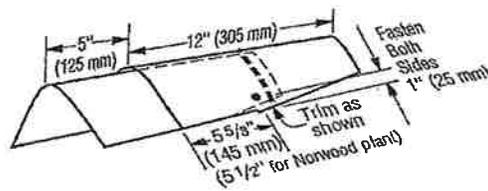


Figure 11-25: Installation of caps along the hips and ridges.

Note: For ASTM D3161 - Class F, use BASF Sonolastic NP 1 adhesive or Henkel PL® Polyurethane Roof & Flashing Sealant, in accordance with manufacturer's instructions.

6.3.2 **Carriage House Shingle®, Centennial Slate™ and Grand Manor Shingle®:**

LOW AND STANDARD SLOPE

Use five nails for every full shingle.

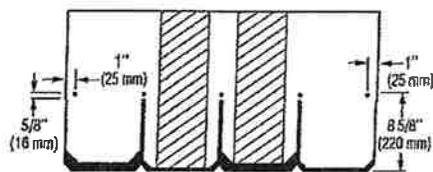


Figure 17-4: Use five nails for every full Grand Manor Shingle, Carriage House Shingle, or Centennial Slate.

STEEP SLOPE

Use seven nails and three spots of asphalt roofing cement for every full Grand Manor Shingle. Use five nails and three spots of asphalt roofing cement for every full Carriage House Shingle and Centennial Slate. Apply asphalt roofing cement 1" (25 mm) from edge of shingle (Figure 17-5). Asphalt roofing cement meeting ASTM D4586 Type II is suggested.

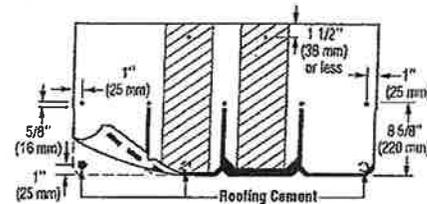


Figure 17-5: When installing Grand Manor Shingles on steep slopes, use seven nails and three spots of asphalt roofing cement.

6.3.2.1 Hip & Ridge: Shangle® Ridge

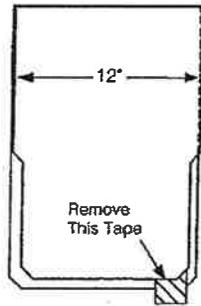


Figure 17-18: Shangle® Ridge.

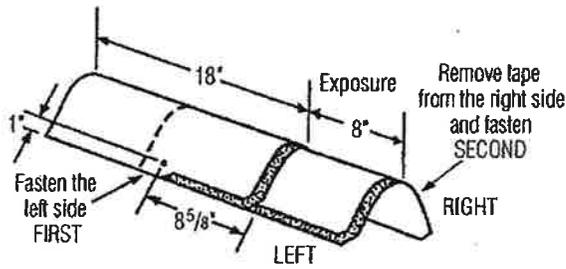


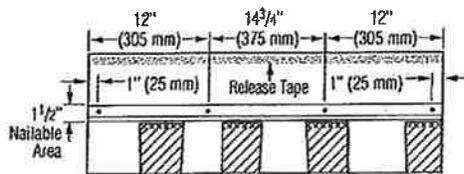
Figure 17-19: Installation of Shangle® Ridge shingles on hips and ridges.

Note: For ASTM D3161 - Class F, use BASF Sonolastic NP 1 adhesive or Henkel PL® Polyurethane Roof & Flashing Sealant in accordance with manufacturer's instructions.

6.3.3 Landmark™, Landmark™ IR, Landmark™ Pro (formerly Landmark™ Plus), Landmark™ Premium, Landmark™ TL, Landmark™ Solaris, Landmark™ Solaris IR:

LOW AND STANDARD SLOPE

METRIC DIMENSIONS



LANDMARK TL

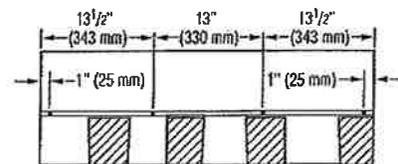
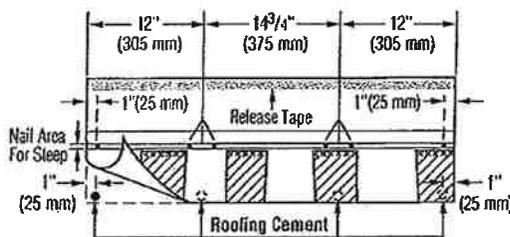


Figure 13-4: Use four nails for every full shingle.

STEEP SLOPE

Use six nails and four spots of asphalt roofing cement for every full laminated shingle. See below. Asphalt roofing cement should meet ASTM D4586 Type II. Apply 1" spots of asphalt roofing cement under each corner and at about 12" to 13" in from each edge.

METRIC DIMENSIONS



LANDMARK TL

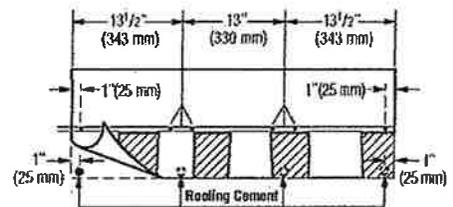


Figure 13-5: Use six nails and four spots of asphalt roofing cement on steep slopes.

6.3.3.1 Hip & Ridge, Option 1: Shadow Ridge™

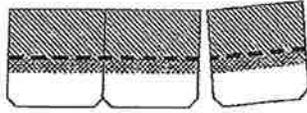


Figure 13-16: Shadow Ridge accessory shingles detach easily from three-piece units to make 72 individual cap pieces.

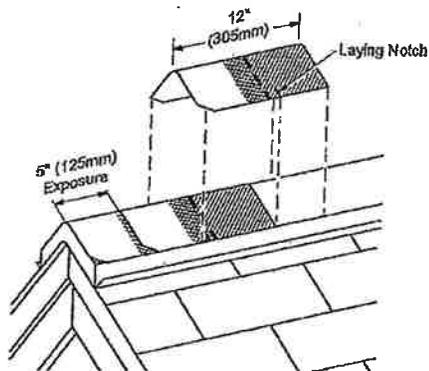
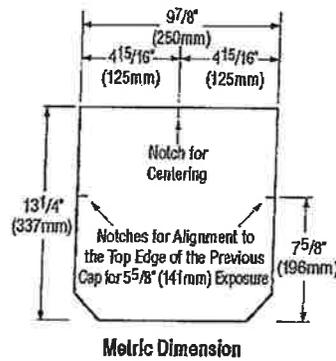
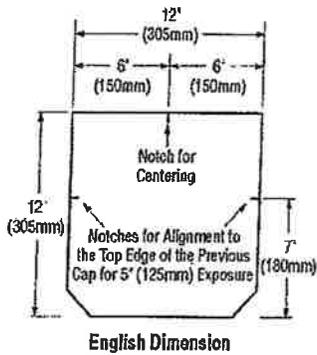
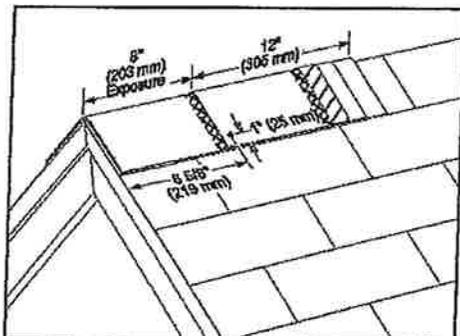


Figure 13-20: Use laying notches to center shingles on hips and ridges, and to locate the correct exposure.

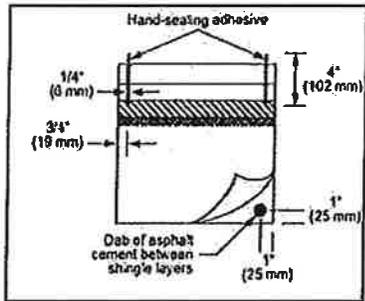
Note: For ASTM D3161 - Class F, use BASF Sonolastic NP 1 adhesive or Henkel PL® Polyurethane Roof & Flashing Sealant in accordance with manufacturer's instructions.

6.3.3.2 Hip & Ridge, Option 2: Cedar Crest™, Cedar Crest™ IR

Use two fasteners per shingle. For the starter shingle, place fastener 1-inch from each side edge and about 2-inch up from the starter shingle's exposed butt edge. For each full Cedar Crest shingle, place fasteners 8-5/8-inch up from its exposed butt edge and 1-inch from each side edge.



Note: For ASTM D3161 - Class F, use BASF Sonofastic NP 1 adhesive or Henkel PL® Polyurethane Roof & Flashing Sealant to hand-seal Cedar Crest shingles. Apply NP 1 or PL adhesive from the middle of the shingle's raised overlay on the top piece and extending approximately 4-inch along the sides of the headlap along a line ¾ to 1-inch from each side of the shingle's headlap. Immediately align and apply the overlying shingle, gently pressing tab sides into the adhesive, and install nails. To secure the other side, apply a 1-inch diameter spot of NP 1 or PL adhesive between the shingle layers.



6.3.4 **Presidential Shake™, Presidential Shake™ IR, Presidential Shake TL™:**

LOW AND STANDARD SLOPE:

For low and standard slopes, use five nails for each full Presidential shingle as shown below.

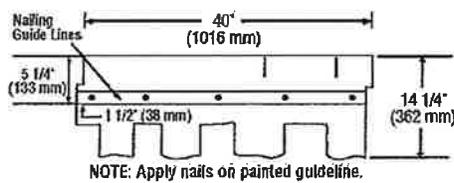


Figure 16-6: Fastening Presidential and Presidential TL Shake shingles on low and standard slopes.

STEEP SLOPE:

For steep slopes, use nine nails for each full Presidential shingle and apply 1" diameter spots of asphalt roofing cement under each shingle tab. After applying 5 nails in between the nailing guide lines, apply 4 nails 1" above tab cutouts making certain tabs of overlying shingle cover nails.

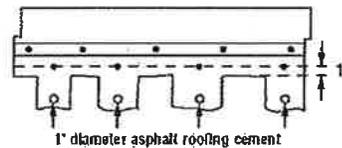


Figure 16-7: Fastening Presidential and Presidential TL Shake shingles on steep slopes.

6.3.4.1 **Hip & Ridge, Option 1: Presidential Accessory**

PRESIDENTIAL ACCESSORY

Presidential accessory shingles can be used for covering hips and ridges. Apply shingles up to the ridge (expose no more than 7" from the bottom edge of the "tooth." Fasten each accessory with two fasteners. The fasteners must be 3/4" long or longer, so they penetrate either 3/4" into the deck or completely through the deck. Presidential accessory comes in two different sizes: Accessory produced in Birmingham, AL is 12" x 12"; Portland, OR produces 9 7/8" x 13 1/4" accessory.

Note: For ASTM D3161 - Class F, use BASF Sonofastic NP 1 adhesive or Henkel PL® Polyurethane Roof & Flashing Sealant in accordance with manufacturer's instructions.

6.3.4.2 **Hip & Ridge, Option 2: Refer to instructions herein for Cedar Crest™, Cedar Crest™ IR hip and ridge shingles.**

6.3.5 **Hatteras™:**

LOW, STANDARD AND STEEP SLOPE:

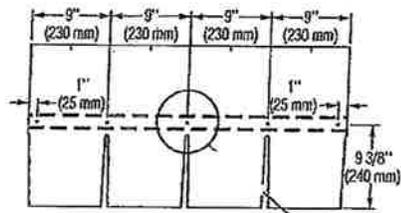


Figure 15-3: Fastening Hatteras Shingles on Low and Standard Slopes

For low and standard slopes, use five nails for each full Hatteras shingle as shown above.

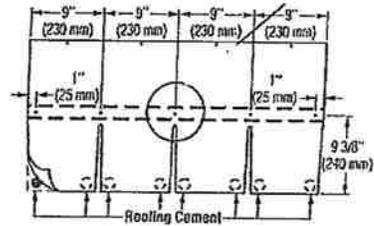


Figure 15-4: Fastening Hatteras Shingles on Steep Slopes

For steep slopes, use five nails and eight spots of asphalt roofing cement for each full Hatteras shingle as shown above. Apply 1" (25mm) diameter spots of roofing cement (ASTM D-4586 Type II suggested) under each tab corner. Press shingle into place; do not expose cement.

CAUTION: Too much roofing cement can cause shingles to blister.

6.3.5.1 Hip & Ridge, Option 1: Accessory for Hatteras

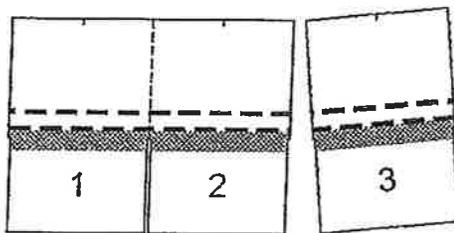
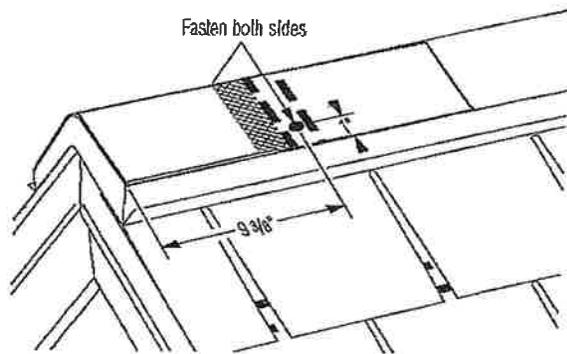


Figure 15-14: 18 three-piece units separate to make 54 Hatteras Accessory shingles.



Note: For ASTM D3161 - Class F, use BASF Sonolastic NP 1 adhesive or Henkel PL® Polyurethane Roof & Flashing Sealant in accordance with manufacturer's instructions.

6.3.5.2 Hip & Ridge, Option 2: Cut Hatteras Shingles

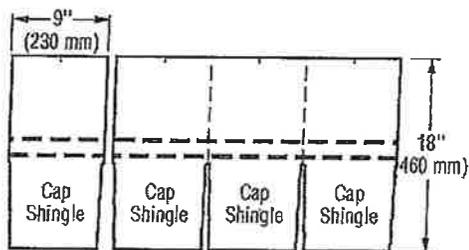


Figure 15-20: Cut Hatteras shingles to make cover cap.

Note: For ASTM D3161 - Class F, use BASF Sonolastic NP 1 adhesive or Henkel PL® Polyurethane Roof & Flashing Sealant in accordance with manufacturer's instructions.

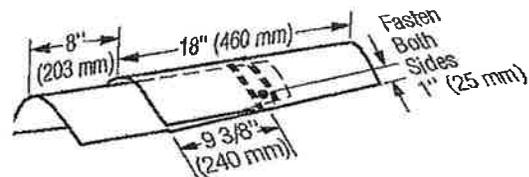


Figure 15-21: Installation of caps along hips and ridges.

6.3.6 **Highland Slate™, Highland Slate™ IR:**

LOW AND STANDARD SLOPE:

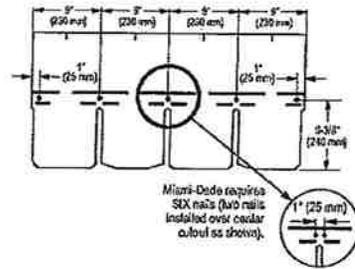


Figure 11-3: Use FIVE nails for every Highland Slate shingle.

STEEP SLOPE:

Use FIVE nails and EIGHT spots of asphalt roofing cement* for each full Highland Slate shingle. For Miami-Dade, SIX nails are required. Apply 1" diameter spots of asphalt roofing cement under each tab corner. Asphalt roofing cement meeting ASTM D4586 Type II is suggested.

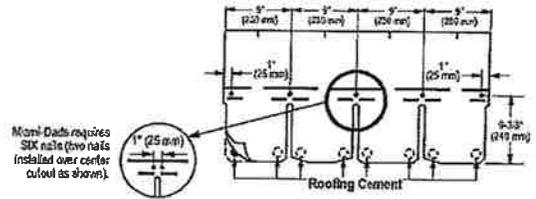


Figure 11-3a: Use FIVE nails and eight spots of asphalt roofing cement under each tab corner.

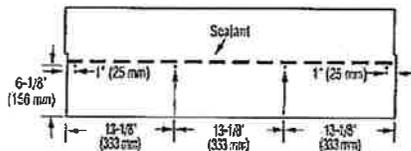
*CAUTION: Excessive use of roofing cement can cause shingles to blister.

6.3.6.1 Hip & Ridge, Option 1: Refer to instructions herein for Cedar Crest™, Cedar Crest™ IR or Shangle Ridge™ hip and ridge shingles.

6.3.7 **Patriot™:**

LOW AND STANDARD SLOPE

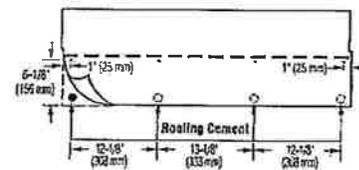
Use FOUR nails for every full shingle located as shown below.



STEEP SLOPE

Use FOUR nails and four spots of asphalt roofing cement for every full shingle as shown below. Asphalt roofing cement meeting ASTM D4586 Type II is suggested. Apply 1" (25 mm) spots of asphalt roofing cement as shown.

CAUTION: Excessive use of roofing cement can cause shingles to blister.



Hip & Ridge: Refer to instructions herein for Cedar Crest™, Cedar Crest™ IR, Shadow Ridge™ or Shangle Ridge™ hip and ridge shingles.

7. LABELING:

7.1 Each unit shall bear a permanent label with the manufacturer's name, logo, city, state and logo of the Accredited Quality Assurance Agency noted herein.

7.2 Asphalt shingle wrappers shall indicate compliance with one of the required classifications detailed in FBC Table 1507.2.7.1 / R905.2.6.1.

8. BUILDING PERMIT REQUIREMENTS:

As required by the Building Official or Authority Having Jurisdiction in order to properly evaluate the installation of this product.

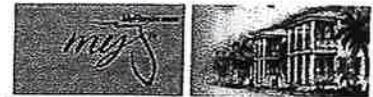
9. MANUFACTURING PLANTS:

Contact the named QA entity for information on which plants produce products covered by Florida Rule 61G20-3 QA requirements.

10. QUALITY ASSURANCE ENTITY:

UL LLC -- QUA9625; (414) 248-6409; karen.buchmann@us.ul.com

- END OF EVALUATION REPORT -



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Product Approval
USER: Public User

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[Product Approval Menu](#) > [Product or Application Search](#) > [Application List](#) > [Application Detail](#)



FL #	FL5259-R24
Application Type	Revision
Code Version	2014
Application Status	Approved

*Approved by DBPR. Approvals by DBPR shall be reviewed and ratified by the POC and/or the Commission if necessary.

Comments
Archived

Product Manufacturer
Address/Phone/Email

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jakins@polyglass.com

Authorized Signature

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jakins@polyglass.com

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Quality Assurance Representative
Address/Phone/Email

James Akins
555 Oakridge Road
Humboldt Industrial Pkwy
Hazleton, PA 18201
(800) 894-4563
jakins@polyglass.com

Category

Roofing

Subcategory

Underlayments

Compliance Method

Evaluation Report from a Florida Registered Architect or a Licensed Florida Professional Engineer
 Evaluation Report - Hardcopy Received

Florida Engineer or Architect Name who developed the Evaluation Report

Robert Nieminen

Florida License

PE-59166

Quality Assurance Entity

UL LLC

Quality Assurance Contract Expiration Date

07/01/2017

Validated By

John W. Knezevich, PE
 Validation Checklist - Hardcopy Received

Certificate of Independence

[FL5259_R24_COI_2015_01_COI_Nieminen.pdf](#)

Referenced Standard and Year (of Standard)	Standard	Year
	ASTM D1970	2009
	ASTM D226	2006
	ASTM D6164	2005
	ASTM D6222	2008
	ASTM G154	2006

ASTM G155	2005
FM 4474	2004
FRSA/TRI April 2012	2012
TAS 103	1995

Equivalence of Product Standards
Certified By

Sections from the Code

Product Approval Method	Method 1 Option D
Date Submitted	07/22/2015
Date Validated	08/07/2015
Date Pending FBC Approval	08/15/2015
Date Approved	10/16/2015

Summary of Products

FL #	Model, Number or Name	Description
5259.1	Polyglass Roof Underlayments	Roofing underlayments
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-622.5 Other: 1.) The design pressure in this application relates to one particular underlayment system (over concrete deck) for use under foam-on tile systems (where the underlayment forms part of the load-path). Refer to ER Section 5.6.4 for other systems, other deck types and associated maximum design pressures. 2.) Refer to ER Section 5 for other limits of use.		Installation Instructions FL5259 R24 II 2015 07 FINAL ER POLYGLASS UNDERLAYMENTS FL5259-R24.pdf Verified By: Robert Nieminen PE-59166 Created by Independent Third Party: Yes Evaluation Reports FL5259 R24 AE 2015 07 FINAL ER POLYGLASS UNDERLAYMENTS FL5259-R24.pdf Created by Independent Third Party: Yes

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Contact Us :: 1940 North Monroe Street, Tallahassee FL 32399 Phone: 850-487-1824

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Product Approval Accepts:





EXTERIOR RESEARCH & DESIGN, LLC.

Certificate of Authorization #9503

353 CHRISTIAN STREET, UNIT #13

OXFORD, CT 06478

PHONE: (203) 262-9245

FAX: (203) 262-9243

EVALUATION REPORT

Polyglass USA, Inc.

150 Lyon Drive

Fernley, NV 98408

Evaluation Report P12060.02.09-R20

FL5259-R24

Date of Issuance: 02/24/2009

Revision 20: 07/22/2015

SCOPE:

This Evaluation Report is issued under Rule 61G20-3 and the applicable rules and regulations governing the use of construction materials in the State of Florida. The documentation submitted has been reviewed by Robert Nieminen, P.E. for use of the product under the Florida Building Code and Florida Building Code, Residential Volume. The products described herein have been evaluated for compliance with the 5th Edition (2014) Florida Building Code sections noted herein.

DESCRIPTION: Polyglass Roof Underlayments

LABELING: Labeling shall be in accordance with the requirements the Accredited Quality Assurance Agency noted herein.

CONTINUED COMPLIANCE: This Evaluation Report is valid until such time as the named product(s) changes, the referenced Quality Assurance documentation changes, or provisions of the Code that relate to the product change. Acceptance of this Evaluation Report by the named client constitutes agreement to notify Robert Nieminen, P.E. if the product changes or the referenced Quality Assurance documentation changes. Trinity|ERD requires a complete review of this Evaluation Report relative to updated Code requirements with each Code Cycle.

ADVERTISEMENT: The Evaluation Report number preceded by the words "Trinity|ERD Evaluated" may be displayed in advertising literature. If any portion of the Evaluation Report is displayed, then it shall be done in its entirety.

INSPECTION: Upon request, a copy of this entire Evaluation Report shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This Evaluation Report consists of pages 1 through 12.

Prepared by:

Robert J.M. Nieminen, P.E.

Florida Registration No. 59166, Florida DCA ANE1983



The facsimile seal appearing was authorized by Robert Nieminen, P.E. on 07/22/2015. This does not serve as an electronically signed document. Signed, sealed hardcopies have been transmitted to the Product Approval Administrator and to the named client

CERTIFICATION OF INDEPENDENCE:

1. Trinity|ERD does not have, nor does it intend to acquire or will it acquire, a financial interest in any company manufacturing or distributing products it evaluates.
2. Trinity|ERD is not owned, operated or controlled by any company manufacturing or distributing products it evaluates.
3. Robert Nieminen, P.E. does not have nor will acquire, a financial interest in any company manufacturing or distributing products for which the evaluation reports are being issued.
4. Robert Nieminen, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.
5. This is a building code evaluation. Neither Trinity|ERD nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.

ROOFING COMPONENT EVALUATION:

1. SCOPE:

Product Category: Roofing

Sub-Category: Underlayment

Compliance Statement: Roof Underlayments, as produced by Polyglass USA, Inc., have demonstrated compliance with the following sections of the Florida Building Code through testing in accordance with the following Standards. Compliance is subject to the Installation Requirements and Limitations / Conditions of Use set forth herein.

2. STANDARDS:

<u>Section</u>	<u>Property</u>	<u>Standard</u>	<u>Year</u>
1504.3.1	Wind Uplift	FM 4474	2004
1504.6	Accelerated Weathering	ASTM G154	2006
1504.6	Accelerated Weathering	ASTM G155	2005
1507.2.3, 1507.3.3, 1507.5.3, 1507.7.3, 1507.8.3, 1507.9.3	Physical Properties	ASTM D226	2006
1507.2.4, 1507.2.9.2, 1507.5.3, 1507.7.3	Physical Properties	ASTM D1970	2009
1507.11.2	Physical Properties	ASTM D6164	2005
1507.11.2	Physical Properties	ASTM D6222	2008
1507.3.3	Installation Practice	FRSA/TRI April 2012	2012
1523.6.5.2.1	Physical Properties	TAS 103	1995

3. REFERENCES:

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
FM Approvals (TST 1867)	Wind Uplift	3004091	01/12/2000
PRI (TST 5878)	Physical Properties	PRI01111	04/08/2002
PRI (TST 5878)	Physical Properties	PUSA-005-02-01	01/31/2002
PRI (TST 5878)	Physical Properties	PUSA-013-02-01	12/23/2002
PRI (TST 5878)	Physical Properties	PUSA-013-02-02	12/23/2002
PRI (TST 5878)	Physical Properties	PUSA-013-02-03	12/23/2002
PRI (TST 5878)	Physical Properties	PUSA-018-02-01	07/14/2003
PRI (TST 5878)	Physical Properties	PUSA-028-02-01	07/13/2005
PRI (TST 5878)	Physical Properties	PUSA-033-02-01	01/12/2006
PRI (TST 5878)	Physical Properties	PUSA-035-02-01	09/29/2006
PRI (TST 5878)	Physical Properties	PUSA-055-02-02	12/10/2007
PRI (TST 5878)	Physical Properties	PUSA-061-02-02	01/28/2008
PRI (TST 5878)	Physical Properties	PUSA-076-02-01	02/22/2008
PRI (TST 5878)	Physical Properties	PUSA-083-02-01	04/14/2008
PRI (TST 5878)	Physical Properties	PUSA-088-02-01	07/29/2009
MTI (TST 2508)	Physical Properties	JX20H7A	04/01/2008
MTI (TST 2508)	Physical Properties	RX14E8A	01/29/2009
ERD (TST 6049)	Physical Properties	11752.09.99-1	02/08/2000
ERD (TST 6049)	Wind Uplift	11757.08.01-1	08/13/2001
ERD (TST 6049)	Wind Uplift	11776.06.02	01/16/2003
ERD (TST 6049)	Physical Properties	02200.07.03	07/14/2003
ERD (TST 6049)	Wind Uplift	P1740.01.07	01/04/2007
ERD (TST 6049)	Physical Properties	P5110.04.07-1	04/11/2007
ERD (TST 6049)	Wind Uplift	P9260.03.08	03/21/2008
ERD (TST 6049)	Physical Properties	P13450.08.09	08/13/2009
ERD (TST 6049)	Wind Uplift	P30540.11.09-R1	11/30/2009
ERD (TST 6049)	Physical Properties	P11030.11.09-1	11/30/2009
ERD (TST 6049)	Wind Uplift	P11030.11.09-2	11/30/2009
ERD (TST 6049)	Physical Properties	P11030.11.09-3	11/30/2009
ERD (TST 6049)	Physical Properties	P33360.06.10	06/25/2010
ERD (TST 6049)	Physical Properties	P33370.03.11	03/02/2011

Entity	Examination	Reference	Date
ERD (TST 6049)	Physical Properties	P33370.04.11	04/26/2011
ERD (TST 6049)	Physical Properties	P37300.10.11	10/19/2011
ERD (TST 6049)	Physical Properties	P40390.08.12-1	08/06/2012
ERD (TST 6049)	Physical Properties	P40390.08.12-2	08/07/2012
ERD (TST 6049)	Physical Properties	C41420.09.12-3	09/11/2012
ERD (TST 6049)	Wind Uplift	P39680.03.13	03/04/2013
ERD (TST 6049)	Physical Properties	P45370.04.13	04/26/2013
ERD (TST 6049)	Wind Uplift	P1738.02.07-R2	04/29/2013
ERD (TST 6049)	Wind Uplift	11757.04.01-1-R1	04/30/2013
ERD (TST 6049)	Wind Uplift	P41630.08.13	08/06/2013
ERD (TST 6049)	Wind Uplift	P11751.05.03-R1	11/26/2013
ERD (TST 6049)	Wind Uplift	P11781.11.03-R1	11/26/2013
ERD (TST 6049)	Physical Properties	P45270.05.14	05/12/2014
ERD (TST 6049)	Physical Properties	6020.07.14-1	09/08/2014
ERD (TST 6049)	Physical Properties	6020.09.14-2	09/08/2014
ERD (TST 6049)	Physical Properties	6020.09.14-3	09/08/2014
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ERD (TST 6049)	Physical Properties	6020.09.14-6	09/08/2014
ERD (TST 6049)	Physical Properties	P46520.10.14	10/03/2014
ERD (TST 6049)	Physical Properties	P44360.10.14	10/07/2014
ERD (TST 6049)	Physical Properties	P43290.10.14	10/17/2014
ERD (TST 6049)	Physical Properties	PLYG-SC7550.03.15	03/24/2015
ERD (TST 6049)	Physical Properties	P40390.04.15	04/03/2015
ERD (TST 6049)	Wind Uplift	PLYG-SC8905.15	07/22/2015
ICC-ES (EVL 2396)	IBC Compliance	ESR-1697	11/01/2014
Miami-Dade (CER 1592)	HVHZ Compliance	NOA 14-0717.08	01/22/2015
Polyglass USA	Manufacturing Affidavit	Products Current	02/18/2009
Polyglass USA	P/L Affidavit	Mule-Hide Cross Ltg	03/01/2008
Polyglass USA	Materials Affidavit	Polystick SA Compound	08/18/2011
UL, LLC. (QUA9625)	Quality Control	Service Confirmation, R14571	Exp. 08/08/2015
UL, LLC. (QUA9625)	Quality Control	Service Confirmation, MTS PLUS	Exp. 07/01/2017

4. PRODUCT DESCRIPTION:

4.1 **Mechanically Fastened Underlayments:**

- 4.1.1 Elastobase is a fiberglass reinforced, SBS modified bitumen base sheet.
- 4.1.2 Elastobase P is a polyester-reinforced, SBS modified bitumen base sheet.

4.2 **Self-Adhering Underlayments:**

- 4.2.1 Polystick MTS is a nominal 60-mil thick rubberized asphalt waterproofing membrane, glass fiber reinforced, surfaced with polyolefinic film surface; meets ASTM D1970 and TAS 103.
- 4.2.2 Polystick MTS PLUS is a nominal 60-mil thick rubberized asphalt waterproofing membrane, glass fiber reinforced, surfaced with poly-film surface; meets TAS 103.
- 4.2.3 Polystick IR-Xe is a nominal 60-mil thick rubberized asphalt waterproofing membrane, glass fiber reinforced, with an aggregate surface; meets ASTM D1970.
- 4.2.4 Polystick TU Plus is a nominal 80-mil thick rubberized asphalt waterproofing membrane, glass fiber reinforced, with a polyester fabric surface; meets ASTM D1970 and TAS 103.
- 4.2.5 Polystick TU P is a nominal 130-mil thick rubberized asphalt waterproofing membrane, glass-fiber/polyester reinforced, with a granular surface; meets ASTM D1970 and TAS 103.
- 4.2.6 Polystick TU Max is a nominal 60-mil thick rubberized asphalt waterproofing membrane with a 190 g/m² polyester fabric surface; meets ASTM D1970 and TAS 103.

- 4.2.7 Polyflex SAP, Polyflex SAP FR, Mule-Hide SA-APP Cap Sheet and Mule-Hide SA-APP Cap Sheet (FR) are polyester reinforced, APP modified bitumen cap sheets; meet ASTM D6222.
- 4.2.8 Polystick Dual Pro™ is a nominal 60-mil thick dual-layer rubberized asphalt waterproofing membrane, fiberglass reinforced, with a polyester fabric surface; meets ASTM D1970.
- 4.2.9 Polystick Tile Pro™ is a nominal 60-mil thick dual-layer rubberized asphalt waterproofing membrane, fiberglass reinforced, with a polyester fabric surface; meets ASTM D1970 and TAS 103.
- 4.3 **Mechanically Fastened and/or Bonded Underlayments:**
- 4.3.1 Elastoflex S6 G and Elastoflex S6 G FR are polyester reinforced, SBS modified bitumen cap sheets; meet ASTM D6164.
- 4.3.2 Polyflex G and Polyflex G FR are polyester reinforced, APP modified bitumen cap sheets; meet ASTM D6222.

5. LIMITATIONS:

- 5.1 This is a building code evaluation. Neither Trinity|ERD nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.
- 5.2 This Evaluation Report is not for use in the HVHZ.
- 5.3 Fire Classification is not part of this Evaluation Report; refer to current Approved Roofing Materials Directory for fire ratings of this product.
- 5.4 Polyglass Roof Underlayments may be used with any prepared roof cover where the product is specifically referenced within FBC approval documents. If not listed, a request may be made to the AHJ for approval based on this evaluation combined with supporting data for the prepared roof covering.
- 5.5 **Allowable Roof Covers:**

TABLE 1: ROOF COVER OPTIONS						
Underlayment	Asphalt Shingles	Nail-On Tile	Foam-On Tile	Metal	Wood Shakes & Shingles	Slate
Elastobase	Yes	Yes (base layer in 2-ply system)	Yes (base layer in 2-ply system)	Yes	Yes	Yes
Elastobase P	Yes	Yes (base layer in 2-ply system)	Yes (base layer in 2-ply system)	Yes	Yes	Yes
Polystick MTS	Yes	Yes	No	Yes	Yes	Yes
Polystick MTS PLUS	Yes	Yes	No	Yes	Yes	Yes
Polystick IR-Xe	Yes	No	No	No	Yes	Yes
Polystick TU P	Yes	Yes	Yes See 5.5.1	No	Yes	Yes
Polystick TU Plus	Yes	Yes	Yes See 5.5.1	Yes	Yes	Yes
Polystick TU Max	No	Yes	Yes See 5.5.1	Yes	No	No
Polystick Dual Pro	Yes	Yes	No	Yes	Yes	Yes
Polystick Tile Pro	Yes	Yes	Yes See 5.5.1	Yes	Yes	Yes
Elastoflex S6 G	Yes	Yes	Yes See 5.5.1	No	Yes	Yes
Elastoflex S6 G FR	Yes	Yes	No	No	Yes	Yes
Polyflex G	Yes	Yes	Yes See 5.5.1	No	Yes	Yes
Polyflex G FR	Yes	Yes	No	No	Yes	Yes
Polyflex SAP or SAP FR	Yes	Yes	Yes See 5.5.1	No	Yes	Yes
Mule-Hide SA-APP Cap Sheet or SA-APP Cap Sheet (FR)	Yes	Yes	Yes See 5.5.1	No	Yes	Yes

- 5.5.1 “Foam-On Tile” is limited to use of the following Approved tile adhesives unless tensile adhesion / long term aging data from an accredited testing laboratory is provided.
- ✓ **3M™ 2-Component Roof Tile Adhesive AH-160 (FL6332):** Polystick TU P, Polystick TU Plus, Polystick TU Max, Elastoflex S6 G, Polyflex G, Polyflex SAP, Polyflex SA Cap FR, Mule-Hide SA-APP Cap Sheet or Mule-Hide SA-APP Cap Sheet (FR) or Tile Pro.
 - ✓ **3M™ Foam Roof Tile Adhesive RTA-1 (FL6276):** Polystick TU P, Polystick TU Plus, Polystick TU Max, Elastoflex S6 G, Polyflex G, Polyflex SAP, Polyflex SA Cap FR, Mule-Hide SA-APP Cap Sheet or Mule-Hide SA-APP Cap Sheet (FR) or Tile Pro
 - ✓ **Dow TileBond (FL717):** Polystick TU P, Polystick TU Plus, Polyflex SAP or Tile Pro
 - ✓ **Convenience Products’ Touch ‘n Seal StormBond Roof Tile Adhesive (FL14506):** Polystick TU Plus, Polystick TU Max

5.6 Allowable Substrates:

5.6.1 Direct-Bond to Deck:

Polystick (all variations), Dual Pro, Tile Pro, Polyflex SAP or SAP FR, Mule-Hide SA-APP Cap Sheet or SA-APP Cap Sheet (FR) self-adhered to:

- New untreated plywood; ASTM D41 primed new untreated plywood; Existing plywood; ASTM D41 primed existing plywood; New or existing, unprimed OSB; ASTM D41 primed OSB; Southern Yellow Pine; ASTM D41 primed Southern Yellow Pine; ASTM D41 primed structural concrete; Huber Engineered Woods “ZIP System” Panels (designed and installed to meet wind loads for project).

Note: Polyglass does not require priming of new or existing plywood or OSB sheathing. New or existing plywood or OSB sheathing should be cleaned of all dirt and debris prior to application of Polystick membranes.

Elastoflex S6 G or S6 G FR in hot asphalt to:

- ASTM D41 primed structural concrete.

Polyflex G or G FR torch-applied to:

- ASTM D41 primed structural concrete.

5.6.2 Bond-to-Insulation:

Polystick (all variations), Polyflex SAP or SAP FR, Mule-Hide SA-APP Cap Sheet or SA-APP Cap Sheet (FR) self-adhered to:

- ASTM C1289, Type II, Class 1 polyisocyanurate or Type V polyisocyanurate-composite insulation; Dens Deck DuraGuard; Dens Deck Prime; or SECUROCK Gypsum-Fiber Roof Board.

Elastoflex S6 G or S6 G FR in hot asphalt to:

- Dens Deck Prime or SECUROCK Gypsum-Fiber Roof Board.

Polyflex G or G FR torch-applied to:

- ASTM D41 primed structural concrete; Dens Deck Prime or SECUROCK Gypsum-Fiber Roof Board.

For installation under mechanically attached prepared roof coverings, insulation shall be attached per minimum requirements of the prepared roof covering manufacturer’s Product Approval. For installations under foam-on tile systems, insulation attachment shall be designed by a qualified design professional and installed based on testing of the insulation/underlayment system in accordance with FBC Section 1504.3.1.

5.6.3 **Bond to Mechanically Attached Base Layer:**

Polystick (all variations), Polyflex SAP or SAP FR, Mule-Hide SA-APP Cap Sheet or SA-APP Cap Sheet (FR) Dual Pro or Tile Pro self-adhered to:

- ASTM D226, Type I or II felt; Elastobase; Elastobase P or Mule-Hide Nail Base.

Elastoflex S6 G or S6 G FR in hot asphalt to:

- ASTM D226, Type I or II felt; Elastobase; Elastobase P or Mule-Hide Nail Base.

Polyflex G or G FR torch-applied to:

- Elastobase; Elastobase P or Mule-Hide Nail Base.

For installations under mechanically attached prepared roof coverings, base layer shall be attached per minimum codified requirements. For installations under foam-on tile systems, base layer shall be attached per minimum requirements of FRSA/TRI April 2012 (04-12), Appendix A, Table 1, or as listed in Section 5.6.4 herein, or as tested in accordance with FBC Section 1504.3.1.

5.6.4 **Wind Resistance for Underlayment Systems in Foam-On Tile Applications:** FRSA/TRI April 2012 (04-12) does not address wind uplift resistance of all underlayment systems beneath foam-on tile systems, where the underlayment forms part of the load-path. The following wind uplift limitations apply to underlayment systems that are not addressed in FRSA/TRI April 2012 (04-12) and are used in foam-on tile applications. Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads, and reflects the ultimate passing pressure divided by 2 (the 2 to 1 margin of safety per FBC 1504.9 has already been applied). Refer to FRSA/TRI April 2012 (04-12), Appendix A, Table 1A or FBC 1609 for determination of design wind loads.

5.6.4.1 **Maximum Design Pressure = -90 psf.**

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of AHJ.

Primer: (Optional) PG100 or ASTM D41

Base Ply: (Optional) Polystick MTS PLUS, self-adhered

Underlayment: Polystick TU P, Polystick TU Plus, Polystick TU Max, Polyflex SAP, Polyflex SAP FR, Mule-Hide SA-APP Cap Sheet and Mule-Hide SA-APP Cap Sheet (FR), self-adhered.

5.6.4.2 **Maximum Design Pressure = -135 psf.**

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of AHJ.

Primer: (Optional) PG100 or ASTM D41

Joints: Min. 4-inch wide strips of Elastoflex SA-V over all plywood joints.

Base Ply: (Optional) Polystick MTS PLUS, self-adhered

Underlayment: Polystick TU P, Polystick TU Plus, Polystick TU Max, Polyflex SAP, Polyflex SAP FR, Mule-Hide SA-APP Cap Sheet and Mule-Hide SA-APP Cap Sheet (FR), self-adhered.

5.6.4.3 **Maximum Design Pressure = -315 psf.**

Deck: Structural concrete to meet project requirements to satisfaction of AHJ.

Primer: PG100 or ASTM D41

Base Ply: (Optional) Polystick MTS PLUS, self-adhered

Underlayment: Polystick TU P, Polystick TU Plus, Polystick TU Max, Tile Pro, Polyflex SAP, Polyflex SAP FR, Mule-Hide SA-APP Cap Sheet and Mule-Hide SA-APP Cap Sheet (FR), self-adhered.

5.6.4.4 **Maximum Design Pressure = -622.5 psf.**

Deck: Structural concrete to meet project requirements to satisfaction of AHJ.

Primer: PG100 or ASTM D41

Underlayment: Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.

5.6.4.5 **Maximum Design Pressure = -30.0 psf*.**

Deck: Min. 15/32-inch OSB to meet project requirements to satisfaction of AHJ.

Base Sheet: Elastobase or Mule-Hide Nail Base (poly-film top surface)

Fasteners: 11 ga. x 1.25-inch long x 1-inch head diameter round metal cap nails

Spacing: 6-inch o.c. at the 3-inch wide side laps and 6-inch o.c. at two (2) equally spaced staggered center rows.

Base Ply: (Optional) Polystick MTS PLUS, self-adhered

Underlayment: Polystick TU P, Polystick TU Plus, Polystick TU Max, Polyflex SAP, Polyflex SAP FR, Mule-Hide SA-APP Cap Sheet and Mule-Hide SA-APP Cap Sheet (FR), self-adhered.

- 5.6.4.6 **Maximum Design Pressure = -37.5 psf***.
 Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase or Mule-Hide Nail Base (poly-film top surface)
 Fasteners: 11 ga. x 1.25-inch long x 1-inch head diameter round metal cap nails
 Spacing: 6-inch o.c. at the 3-inch wide side laps and 6-inch o.c. at two (2) equally spaced staggered center rows.
 Base Ply: (Optional) Polystick MTS PLUS, self-adhered
 Underlayment: Polystick TU P, Polystick TU Plus, Polystick TU Max, Polyflex SAP, Polyflex SAP FR, Mule-Hide SA-APP Cap Sheet and Mule-Hide SA-APP Cap Sheet (FR), self-adhered.
- 5.6.4.7 **Maximum Design Pressure = -37.5 psf***.
 Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: One (1) or two (2) layers ASTM D226, Type II felt
 Fasteners: 11 ga. x 1.25-inch long x 1-inch head diameter round metal cap nails
 Spacing: 6-inch o.c. at the 3-inch wide side laps and 12-inch o.c. at two (2) equally spaced staggered center rows.
 Underlayment: Elastoflex S6 G, applied in full mopping of hot asphalt.
- 5.6.4.8 **Maximum Design Pressure = -45 psf***.
 Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: One (1) layer ASTM D226, Type II felt
 Fasteners: 11 ga. x 1.25-inch x 3/8-inch head diameter annular ring shank roofing nails at 1-5/8-inch diameter tin caps
 Spacing: 4-inch o.c. at the 2-inch wide side laps and 4-inch o.c. at two (2) equally spaced staggered center rows.
 Base Ply: (Optional; for use with self-adhering underlayment only) Polystick MTS PLUS, self-adhered
 Underlayment: Polystick TU P, Polystick TU Plus, Polystick TU Max, Polyflex SAP, Polyflex SAP FR, Mule-Hide SA-APP Cap Sheet and Mule-Hide SA-APP Cap Sheet (FR), self-adhered or Elastoflex S6 G, applied in full mopping of hot asphalt.
- 5.6.4.9 **Maximum Design Pressure = -45 psf***.
 Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Two (2) layers ASTM D226, Type II felt
 Fasteners: 11 ga. x 1.25-inch long x 3/8-inch head diameter annular ring shank roofing nails at 1-5/8-inch diameter tin caps
 Spacing: 9-inch o.c. at the 2-inch wide side laps and 9-inch o.c. at two (2) equally spaced staggered center rows.
 Base Ply: (Optional; for use with self-adhering underlayment only) Polystick MTS PLUS, self-adhered
 Underlayment: Polystick TU P, Polystick TU Plus, Polystick TU Max, Polyflex SAP, Polyflex SAP FR, Mule-Hide SA-APP Cap Sheet and Mule-Hide SA-APP Cap Sheet (FR), self-adhered or Elastoflex S6 G, applied in full mopping of hot asphalt.
- 5.6.4.10 **Maximum Design Pressure = -45 psf.**
 Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase (sanded top surface for hot-asphalt or torch-applied cap or poly-film surface for torch-applied cap)
 Fasteners: Simplex MAXX Cap Fasteners
 Spacing: 9-inch o.c. at the 2-inch wide side laps and 18-inch o.c. at two (2) equally spaced staggered center rows.
 Underlayment: Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.
- 5.6.4.11 **Maximum Design Pressure = -52.5 psf.**
 Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase (sanded top surface for hot-asphalt or torch-applied cap or poly-film surface for torch-applied cap)
 Fasteners: Simplex MAXX Cap Fasteners
 Spacing: 9-inch o.c. at the 2-inch wide side laps and 12-inch o.c. at two (2) equally spaced staggered center rows.
 Underlayment: Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.
- 5.6.4.12 **Maximum Design Pressure = -52.5 psf.**
 Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase or Mule-Hide Nail Base (poly-film top surface)
 Fasteners: Simplex Original Cap Nails
 Spacing: 6-inch o.c. at the 3-inch wide side laps and 6-inch o.c. at four (4) equally spaced staggered center rows.
 Base Ply: (Optional) Polystick MTS PLUS, self-adhered
 Underlayment: Polystick TU P, Polystick TU Plus, Polystick TU Max, Polyflex SAP, Polyflex SAP FR, Mule-Hide SA-APP Cap Sheet and Mule-Hide SA-APP Cap Sheet (FR), self-adhered.

- 5.6.4.13 Maximum Design Pressure = -52.5 psf.
 Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase (sanded top surface for hot-asphalt or torch-applied cap or poly-film surface for torch-applied cap)
 Fasteners: Simplex Original Cap Nails
 Spacing: 6-inch o.c. at the 3-inch wide side laps and 6-inch o.c. at four (4) equally spaced staggered center rows.
 Underlayment: Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.
- 5.6.4.14 Maximum Design Pressure = -60 psf.
 Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase (sanded top surface for hot-asphalt or torch-applied cap or poly-film surface for torch-applied cap)
 Fasteners: 11 ga. x 1.25-inch long x 3/8-inch head diameter annular ring shank roofing nails at 1-5/8-inch diameter tin caps
 Spacing: 8-inch o.c. at the 4-inch wide side laps and 8-inch o.c. at three (3) equally spaced staggered center rows.
 Underlayment: Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.
- 5.6.4.15 Maximum Design Pressure = -60 psf.
 Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase (sanded top surface for hot-asphalt or torch-applied cap or poly-film surface for torch-applied cap)
 Fasteners: OMG #12 Standard Roofgrip with OMG Flat Bottom Metal Plates
 Spacing: 12-inch o.c. at the 4-inch wide side laps and 12-inch o.c. at two (2) equally spaced staggered center rows.
 Underlayment: Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.
- 5.6.4.16 Maximum Design Pressure = -90 psf.
 Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase (sanded top surface for hot-asphalt or torch-applied cap or poly-film surface for torch-applied cap)
 Fasteners: Simplex MAXX Cap Fasteners
 Spacing: 6-inch o.c. at the 2-inch wide side laps and 6-inch o.c. at two (2) equally spaced staggered center rows.
 Underlayment: Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.
- 5.6.4.17 Maximum Design Pressure = -90 psf.
 Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase (sanded top surface for hot-asphalt or torch-applied cap or poly-film surface for torch-applied cap)
 Fasteners: OMG #12 Standard Roofgrip or OMG #14 Heavy Duty with OMG 3" Round Metal Plates or OMG Flat Bottom Metal Plates
 Spacing: 6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at three (3) equally spaced staggered center rows.
 Underlayment: Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.
- 5.6.4.18 Maximum Design Pressure = -90 psf.
 Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase (sanded top surface)
 Fasteners: Trufast #12 DP or Trufast #14 HD with Trufast 3" Metal Insulation Plates
 Spacing: 6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at three (3) equally spaced staggered center rows.
 Underlayment: Elastoflex S6 G, applied in full mopping of hot asphalt.
- 5.6.4.19 Maximum Design Pressure = -97.5 psf.
 Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase or Mule-Hide Nail Base (poly-film top surface)
 Fasteners: 11 ga. x 1.25-inch x 3/8-inch head diameter annular ring shank roofing nails at 1-5/8-inch diameter tin caps
 Spacing: 4-inch o.c. at the 4-inch wide side laps and 4-inch o.c. at four (4) equally spaced staggered center rows.
 Base Ply: (Optional) Polystick MTS PLUS, self-adhered
 Underlayment: Polystick TU P, Polystick TU Plus, Polystick TU Max, Polyflex SAP, Polyflex SAP FR, Mule-Hide SA-APP Cap Sheet and Mule-Hide SA-APP Cap Sheet (FR), self-adhered.
- 5.6.4.20 Maximum Design Pressure = -105 psf.
 Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase (sanded top surface for hot-asphalt or torch-applied cap or poly-film surface for torch-applied cap)
 Fasteners: Simplex MAXX Cap Fasteners
 Spacing: 6-inch o.c. at the 2-inch wide side laps and 6-inch o.c. at three (3) equally spaced staggered center rows.
 Underlayment: Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.

- 5.6.4.21 Maximum Design Pressure = -112.5 psf.
 Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase or Mule-Hide Nail Base (poly-film top surface)
 Fasteners: 11 ga. x 1.25-inch x 3/8-inch head diameter annular ring shank roofing nails at 1-5/8-inch diameter tin caps
 Spacing: 6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at four (4) equally spaced staggered center rows.
 Primer: PG100 or ASTM D41 primer at all tin-caps
 Base Ply: Polystick MTS PLUS, self-adhered
 Underlayment: Polystick TU P, Polystick TU Plus, Polystick TU Max, Polyflex SAP, Polyflex SAP FR, Mule-Hide SA-APP Cap Sheet and Mule-Hide SA-APP Cap Sheet (FR), self-adhered.
- 5.6.4.22 Maximum Design Pressure = -120 psf.
 Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase (sanded top surface for hot-asphalt or torch-applied cap or poly-film surface for torch-applied cap)
 Fasteners: OMG #12 Standard Roofgrip or OMG #14 Heavy Duty with OMG 3" Round Metal Plates or OMG Flat Bottom Metal Plates
 Spacing: 6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at five (5) equally spaced staggered center rows.
 Underlayment: Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.
- 5.6.4.23 Maximum Design Pressure = -120 psf.
 Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of AHJ.
 Base Sheet: Elastobase (sanded top surface)
 Fasteners: Trufast #12 DP or Trufast #14 HD with Trufast 3" Metal Insulation Plates
 Spacing: 6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at five (5) equally spaced staggered center rows.
 Underlayment: Elastoflex S6 G, applied in full mopping of hot asphalt.
- 5.6.4.24 All other direct-deck, adhered Polyglass underlayment systems beneath foam-on tile systems carry a Maximum Design Pressure of -45 psf.
- 5.6.4.25 For mechanically attached base sheet in a 2-ply system, the maximum design pressure for the selected assembly shall meet or exceed the Zone 1 design pressure determined in accordance with FRSA/TRI April 2012 (04-12), Appendix A, Table 1A or FBC 1609. Zones 2 and 3 shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria. Commonly used methods are RAS 117, FM LPDS 1-29 and ANSI/SPRI WD1. Assemblies marked with an asterisk* carry the limitations set forth in Section 2.2.1.5.1(a) of FM LPDS 1-29 for Zone 2/3 enhancements.
- 5.7 Exposure Limitations:
 Elastobase or Elastobase P shall not be left exposed for longer than 30-days after installation.
 Polystick IR-Xe shall not be left exposed for longer than 90-days after installation.
 Polystick MTS, MTS PLUS, TU P, TU Plus, TU Max, Dual Pro or Tile Pro shall not be left exposed for longer than 180-days after installation.
 Polyflex SAP or SAP FR, or Mule-Hide SA-APP Cap Sheet or SA-APP Cap Sheet (FR) does not have an exposure limitation, unless the prepared roof covering is to be adhesive-set tile, in which case the maximum exposure is 30 days.
 Elastoflex S6 G or S6 G FR or Polyflex G or G FR does not have an exposure limitation, unless the prepared roof covering is to be adhesive-set tile (Elastoflex S6 G or Polyflex G only), in which case the maximum exposure is 180 days.

6. INSTALLATION:

6.1 Polyglass Roof Underlayments shall be installed in accordance with Polyglass published installation requirements subject to the Limitations set forth in Section 5 herein and the specifics noted below.

6.2 Re-fasten any loose decking panels, and check for protruding nail heads. Sweep the substrate thoroughly to remove any dust and debris prior to application, and prime the substrate (if applicable).

6.3 Elastobase, Elastobase P or Mule-Hide Nail Base:

6.3.1 Shall be installed in compliance with the codified requirements for ASTM D226, Type II underlayment in FBC Sections 1507 for the type of prepared roof covering to be installed.

6.3.2 Non-Tile Applications:

Reference is made to the current edition of the NRCA Steep-slope Roofing Manual and ARMA recommendations for installing shingle underlayments and flashings

Elastobase, Elastobase P or Mule-Hide Nail Base may be covered with a layer of Polystick, Polyflex SAP or SAP FR, Mule-Hide SA-APP Cap Sheet or SA-APP Cap Sheet (FR), Dual Pro or Tile Pro, self-adhered, Elastoflex S6 G or S6 G FR in hot asphalt or Polyflex G or G FR, torch applied.

6.3.3 Tile Applications:

Reference is made to FRSA/TRI April 2012 (04-12) Installation Manual and Table 1 herein, using the instructions noted above as a guideline.

6.4 Polystick MTS, MTS PLUS, IR-Xe, TU P, TU Plus, TU Max Polyflex SAP or SAP FR, Mule-Hide SA-APP Cap Sheet or SA-APP Cap Sheet (FR), Dual Pro or Tile Pro:

6.4.1 Shall be installed in compliance with the codified requirements for ASTM D1970 underlayment in FBC Sections 1507 for the type of prepared roof covering to be installed.

6.4.2 Direct-to-Deck with Mechanically Fastened Roof Covers:

All self-adhering materials, with the exception of Polystick TU Plus, Polyflex SAP or SAP FR and Mule-Hide SA-APP Cap Sheet or SA-APP Cap Sheet (FR) should be back-nailed in selvage edge seam in accordance with Polyglass / Mule-Hide Back Nailing Guide. Nails shall be corrosion resistant, 11 gauge ring-shank type with a minimum 1-inch diameter metal disk or Simplex-type metal cap nail, at a minimum rate of 12" o.c. Polystick TU Plus should be back-nailed using the above noted fasteners and spacing, in area marked "nail area, area para clavar" on the face of membrane. The head lap membrane is to cover the area being back-nailed

All seal-lap seams (selvage laps) must be firmly rolled with a minimum 28 lb. hand roller to ensure full contact and adhesion.

For Dual Pro and Tile Pro, align the edge of the top sheet to the end of the glue pattern (the sheet will overlap the fabric).



View of Overlap Seam of Dual Pro and Tile Pro

All over-fabric and over-granule end-laps shall have a 6-inch wide, uniform layer of Polyplus 50 Premium Modified Wet/Dry Cement or Polyglass PG500 Modified Cement applied in between the application of the lap.

Polystick TU Plus, Dual Pro and Tile Pro may not be used in any exposed application such as crickets, exposed valleys, or exposed roof to wall details

Repair of Polystick membranes is to be accomplished by applying Polyplus 50 Premium Modified Wet/Dry Cement or Polyglass PG500 Modified Cement to the area in need of repair, followed by a minimum 6 x 6 inch patch of the Polystick material of like kind, set and hand rolled in place over the repair area. Patch laps, if needed, shall be installed in a water shedding manner.

All Polystick membranes shall be installed to ensure full contact with approved substrates. Polyglass requires a minimum of 40-lb weighted-roller or, on steep slopes, use of a stiff broom with approximately 40-lbs of load applied for the field membrane. Hand rollers are acceptable for rolling of patches, laps (min. 28 lb roller) or small areas of the roof that are not accessible to a large roller or broom.

6.4.3 **Tile Applications (not allowed for Polystick IR-Xe):**

Reference is made to FRSA/TRI April 2012 (04-12) Installation Manual and Table 1 herein, using the instructions noted above as a guideline.

For mechanically fastened tile roofing over 2-ply system, consisting of base sheet and self-adhering top sheet(s), base sheet fastening shall be not less than FRSA/TRI April 2012 (04-12), Table 1.

For adhesive-set tile applications, refer to Section 5.6.4 herein.

For nail-on tile systems over Polystick MTS, battens are required for loading / staging of the tile.

For nail-on tile systems over Polystick MTS PLUS:

- Battens are required for loading/staging of lugged tile regardless of slope.
- Battens are required for loading/staging of flat tile at slopes in excess of 5:12.

6.4.4 **Two (2) Ply Underlayment Systems:**

Polystick MTS or MTS PLUS followed by Polystick MTS, MTS PLUS, TU P, TU Plus, TU Max, TilePro or Polyflex SAP is allowable for use under mechanically attached prepared roof systems. Limits of use are those associated with the top-layer material. This is not a requirement, but is allowable if a 2-ply underlayment system is desired.

Polystick MTS PLUS followed by Polystick TU P, TU Plus, TU Max, TilePro or Polyflex SAP is allowable for use under foam-on tile systems. Limits of use are those associated with the top-layer material. This is not a requirement, but is allowable if a 2-ply underlayment system is desired.

6.5 Elastoflex S6 G or S6 G FR:

6.5.1 Elastoflex S6 G or S6 G FR shall be installed in compliance with current Polyglass published installation requirements. For use in tile applications, reference is made to FRSA/TRI April 2012 (04-12) Installation Manual and Table 1 herein.

6.5.2 Elastoflex S6 G or S6 G FR shall be fully asphalt-applied to the substrates noted in Section 5.6. Side laps shall be minimum 3-inch and end-laps minimum 6-inch wide, off-set minimum 3 feet from course to course. Side and end laps shall be fully adhered in a complete mopping of hot asphalt with asphalt extending approximately 3/8-inch beyond the lap edge.

6.6 Polyflex G or G FR:

6.6.1 Polyflex G or G FR shall be installed in compliance with current Polyglass published installation requirements. For use in tile applications, reference is made FRSA/TRI April 2012 (04-12) Installation Manual and Table 1 herein.

6.6.2 Polyflex G or G FR shall be fully torch-applied to the substrates noted in Section 5.6. Side laps shall be minimum 3-inch and end-laps minimum 6-inch wide, off-set minimum 3 feet from course to course. Side and end laps shall be fully heat-welded and inspected to ensure minimum 3/8-inch flow of modified compound beyond the lap edge.

6.7 Tile Staging:

6.7.1 Tile shall be loaded and staged in a manner that prevents tile slippage and/or damage to the underlayment. Refer to Polyglass published requirements for tile staging.

6.7.2 Battens and/or Counter-battens, as required by the tile manufacturer and FRSA/TRI April 2012 (04-12) must be used on all roof slopes greater than 7:12. Precautions should be taken as needed, such as the use of battens or nail-boards, to prevent tile sliding and/or damage to the underlayment during the loading process.

6.7.3 For nail-on tile systems over Polystick MTS, battens are required for loading / staging of the tile.

- 6.7.4 For nail-on tile systems over Polystick MTS PLUS:
 - Battens are required for loading/staging of lugged tile regardless of slope.
 - Battens are required for loading/staging of flat tile at slopes in excess of 5:12.
- 6.7.5 The minimum cure time after installation of self-adhering membranes and before loading of roofing tiles is forty-eight (48) hours.

7. BUILDING PERMIT REQUIREMENTS:

As required by the Building Official or Authority Having Jurisdiction in order to properly evaluate the installation of this product.

8. MANUFACTURING PLANTS:

Contact the noted QA agency for information on product locations covered for F.A.C. Rule 61G20-3 QA requirements.

9. QUALITY ASSURANCE ENTITY:

UL, LLC – QUA9625; (314) 578-3406; k.chancellor@us.ul.com

- END OF EVALUATION REPORT -



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
08/15/2016

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Bouchard Insurance for WBS P.O.Box 6090 Clearwater, FL 33758-6090	CONTACT NAME: PHONE (A/C, No, Ext): (866) 293-3600 ext. 623 FAX (A/C, No): E-MAIL: ADDRESS:														
	<table border="1"> <thead> <tr> <th>INSURER(S) AFFORDING COVERAGE</th> <th>NAIC #</th> </tr> </thead> <tbody> <tr> <td>INSURER A : American Zurich Insurance Company</td> <td>40142</td> </tr> <tr> <td>INSURER B :</td> <td></td> </tr> <tr> <td>INSURER C :</td> <td></td> </tr> <tr> <td>INSURER D :</td> <td></td> </tr> <tr> <td>INSURER E :</td> <td></td> </tr> <tr> <td>INSURER F :</td> <td></td> </tr> </tbody> </table>		INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A : American Zurich Insurance Company	40142	INSURER B :		INSURER C :		INSURER D :		INSURER E :		INSURER F :
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INSURER E :															
INSURER F :															
INSURED Workforce Business Services, Inc. Alt. Emp: Pro Roofing & Associate Inc 1401 Manatee Ave. West Ste 600 Bradenton, FL 34205-6708															

COVERAGES **CERTIFICATE NUMBER:** 15FL079845159 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:						EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$
	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS						COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input type="checkbox"/> RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A	WC 90-00-818-05	12/31/2015	12/31/2016	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
	Location Coverage Period:			12/31/2015	12/31/2016	Client# 054002	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Coverage is provided for only those co-employees of, but not subcontractors to:
 Pro Roofing & Associate Inc
 3024 Kananwood Ct Suite 1008
 Oviedo, FL 32765

CERTIFICATE HOLDER City of Belle Isle 1600 Nela Avenue Orlando, FL 32809	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE 
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STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CONSTRUCTION INDUSTRY LICENSING BOARD
2601 BLAIR STONE ROAD
TALLAHASSEE FL 32399-0783

(850) 487-1395

CAMPOS, ELMER ANTONIO
PRO ROOFING & ASSOCIATE INC
802 WETSTONE PLACE
SANFORD FL 32771

Congratulations! With this license you become one of the nearly one million Floridians licensed by the Department of Business and Professional Regulation. Our professionals and businesses range from architects to yacht brokers, from boxers to barbeque restaurants, and they keep Florida's economy strong.

Every day we work to improve the way we do business in order to serve you better. For information about our services, please log onto www.myfloridalicense.com. There you can find more information about our divisions and the regulations that impact you, subscribe to department newsletters and learn more about the Department's initiatives.

Our mission at the Department is: License Efficiently, Regulate Fairly. We constantly strive to serve you better so that you can serve your customers. Thank you for doing business in Florida, and congratulations on your new license!



STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CCC1328416 ISSUED: 07/31/2016

CERTIFIED ROOFING CONTRACTOR
CAMPOS, ELMER ANTONIO
PRO ROOFING & ASSOCIATE INC

IS CERTIFIED under the provisions of Ch.489 FS.
Expiration date : AUG 31, 2018 L1607310002887

-----DETACH HERE-----

RICK SCOTT, GOVERNOR

KEN LAWSON, SECRETARY

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
CONSTRUCTION INDUSTRY LICENSING BOARD

LICENSE NUMBER	
CCC1328416	



The ROOFING CONTRACTOR
named below IS CERTIFIED
Under the provisions of Chapter 489 FS.
Expiration date: AUG 31, 2018

CAMPOS, ELMER ANTONIO
PRO ROOFING & ASSOCIATE INC
3024 KANANWOOD CT STE 1008 OVIEDO F
OVIEDO FL 32765





SEMINOLE COUNTY BUSINESS TAX RECEIPT

RAY VALDES, SEMINOLE COUNTY TAX COLLECTOR

PO Box 630 • Sanford, FL 32772-0630 • Telephone: 407-665-1968

www.seminoletax.org

VALID THROUGH 09/30/16

**PRO ROOFING & ASSOCIATE INC
3024 KANANWOOD CT #1008
OVIEDO, FL 32765**

Account #: 173749

ELMERA A CAMPOS (OFFICER)

**REGULATED
License # - CCC1328416
Qualifier- ELMER ANTONIO CAMPOS**

Receipt #: OLHS2015081800872

Amount Paid: \$ 45.00

Date Paid: 08/18/2015

BUSINESS OWNER, PLEASE NOTE THE FOLLOWING:

- **DISPLAY THE ABOVE RECEIPT PROMINENTLY:** This Business Tax Receipt shall be displayed conspicuously at the place of business in such a manner that it can be open to the view of the public and subject to inspection by all duly authorized officers of the County. Upon failure to do so, the business shall be subject to the payment of another business tax for the same business or profession.
- **RENEW THIS TAX BEFORE IT EXPIRES:** Pursuant to Florida Statutes, all Business Tax Receipts shall be issued by the Tax Collector beginning July 1st of each year, and it shall expire on September 30th of the succeeding year. Those Business Tax Receipts issued as renewal accounts beginning October 1st shall be delinquent and subject to a delinquency penalty of 10% for the month of October, plus an additional 5% penalty for each month of delinquency thereafter until paid, provided that the total penalty shall not exceed 25% of the business tax for the delinquent establishment (Florida Statute [FS] 205.053[1]).

A 25% penalty shall be imposed on any individual engaged in any new business or profession without first obtaining a Seminole County Business Tax Receipt (FS 205.053 [2])

This Business Tax Receipt is only a receipt for business taxes paid. It does not permit the taxpayer to violate any existing regulatory or zoning laws of the state, county, or municipality, nor does it exempt the taxpayer from any other required licenses, registrations, certifications, or permits. Business Tax requirements are subject to legislative change.

- **REPORT ALL CHANGES:** The holder of this Business Tax Receipt is required to report a change in the following: Ownership, Business Location, Mailing Address, or any other information that would alter the status of the current year's taxes. This includes, but is not limited to, the loss of or a change in a State License which was used to qualify for the business activity and/or occupation identified on the current County Business Tax Receipt. If you have any changes to report, contact the Business Tax Department at 407-665-7636.

**PRO ROOFING & ASSOCIATE INC
3024 KANANWOOD CT #1008
OVIEDO, FL 32765**

County Services Building 1101 E First Street Sanford, FL 32771	Casselberry Office 104 Wilshire Blvd, Unit 1000 Casselberry, FL 32707	Oak Grove's Shoppes 995 N SR 434 Suite 508 Altamonte Springs, FL 32714	ShelMar Profit Building 1450 Swanson Dr #100 Oviedo, FL 32765	Conations at Primetec 545 Primers Blvd Lake Mary, FL 32746
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