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: ROOF – 500 sf of tile for boat dock roof

comments: None

Project Information
Address: 4124 Isle Vista Avenue, Belle Isle, FL 32812
Parcel ID: 20-23-30-0669-00-350
Property Owner: JPC Construction Inc
Phone Number: 954 947 5400

****

Company Name: Collis Roofing, Inc
Contractor Name: Lanier, Jack Douglas
License Number: CCC058022
Address: 485 Commerce Way, Longwood, FL 32750
Phone Number: 321-441-2300

Permit Number: 2017-08-002

Date of Application: 07/28/2017
Date Permit Issued: 07/31/2017

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 $ none - new

UNIVERSAL ENG - BUILDING FEES

Cert of Occ $
Demo $
Building $
Fence $
Driveway $
Shed $
Window(s) $
Door(s) $
PrePower $
Electrical $
Temp Pole $
Plumbing $
Mechanical $
Gas $
Roofing $72.50
Boat Dock $
Screen Encl $
Swimming Pool $
Sign $

SURCHARGE FEES

Surcharge Fee $2.00
Surcharge Fee $2.00

TOTAL FEES $76.50

Date Paid 8-1-17
CC or Check # VISA 2300
Amount Paid 76.50

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

RECEIVED
JUL 28 2017
BY

City of Belle Isle

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

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: 7/28/17 **ROOF PERMIT NUMBER** 2017-08-002

PLEASE PRINT. The undersigned hereby applies for a permit to make installations as indicated below:

Project Address 4124 Isle Vista Ave.- Boat Dock, Belle Isle, FL ☐ 32809 ☑ 32812

Property Owner JPC Construction, Inc. Phone

Property Owner's Mailing Address 4210 Kezar Court City Belle Isle

State FL Zip Code 32812 **Parcel Id Number:** 20-23-30-0669-00-350

REQUIRED! To obtain this information, please visit http://www.ocpafl.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: 5 BOAT DOCK ROOF **Number of Stories:** 1 **Job Valuation:** $ >15 4480.00

Type: Asphalt Shingles ☐ Metal ☐ Modified Bitumen ☐ Other: Tile- Eagle Capistrano

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.

LICENSE HOLDER SIGNATURE J Douglas Lanier LICENSE # CCC058022

LICENSE HOLDER NAME J Douglas Lanier COMPANY NAME Collis Roofing Inc.

Street Address 485 Commerce Way.

City Longwood State FL Zip Code 32750 Phone Number 321-441-2300

Email Address kkellum@collisroofing.com

Building Official: Date 7-31-17 Lic/Ins ✓ 7-28-17

Zoning Fee	$	0 new
Permit Fee	$	72.50
3% Florida Surcharge	$	4.-
Total Permit Fee	$	76.50

2.5

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.

Building Permit Number 2015-09-070

FTG 1K 25
5x4 20
45 ÷ 2
22.50
72.50

86202

City of Belle Isle

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

Product Approval Form

DATE: 7/28/17 PERMIT # 2017 08-002

PROJECT ADDRESS 4124 Isle Vista Ave. Belle Isle, FL ☐ 32809 ☑ 32812

As required by Florida Statue 553.842 and Florida Administrative Code 9B-72m. please provide the information and approval numbers of the building components listed below if they will be utilized on the building or structure. FL Approved products are listed online at **www.floridabuilding.org** or can be obtained from the local product supplier. The following information must be turned in with permit application and available onsite for inspections:

1. **This Product Approval Cover Sheet**
2. **Internet screen from FloridaBuilding.org showing PA#, approval and code edition stamped**
3. **Manufacturer's *installation* details from FloridaBuilding.org and requirements for each product stamped**

Product Type	Manufacturer	Model/Series	FL Product Approval #
EXTERIOR DOORS			
Swinging			
Sliding			
Sectional/Rollup			
Other			
WINDOWS			
Single/Dbl Hung			
Horizontal Slider			
Casement			
Fixed			
Mullion			
Skylights			
Other			
STRUCTURAL COMPONENTS			
Wood Connectors			
Wood Anchors			
Truss Plates			
Insulation Forms			
Lintels			
Other			

Product Type	Manufacturer	Model/Series	FL Product Approval #
WALL PANELS			
Sliding			
Soffits			
Storefront			
Glass Block			
Other			
ROOFING PRODUCTS			
Asphalt Shingles			
Non Struct Metal			
Roofing Tiles	Eagle Capistrano		FL17326-R2
Single Ply Roof			
Other			
Underlayment			5259 R26
OTHER			

Reviewed for Code Compliance Universal Engineering Sciences

It is the applicant's responsibility to verify that specific products have been installed in accordance with their limitations and with the minimum required design pressures for the structure. Specific compliance will be verified during field inspections.

Applicant Signature _____ **Date** 7/28/17

FLORIDA DEPARTMENT OF
Business & Professional Regulation

Florida dbpr

Product Approval
USER: Public User

OFFICE OF THE SECRETARY

FL #	FL17326-R2
Application Type	Revision
Code Version	2014
Application Status	Approved
Comments	
Archived	☐
Product Manufacturer	EAGLE ROOFING PRODUCTS FLORIDA LLC
Address/Phone/Email	1575 East CR 470 Sumterville, FL 33858 (800) 400-3245 annettes@eagleroofing.com
Authorized Signature	Annette Sindar annettes@eagleroofing.com
Technical Representative	Annette Sindar
Address/Phone/Email	3546 N. Riverside Ave Rialto, CA 92377 (800) 400-3245 annettes@eagleroofing.com
Quality Assurance Representative	
Address/Phone/Email	

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Category	Roofing
Subcategory	Roofing Tiles
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	Zachary R. Priest
Florida License	PE-74021
Quality Assurance Entity	Architectural Testing, Inc.
Quality Assurance Contract Expiration Date	12/31/2018
Validated By	Locke Bowden ☑ Validation Checklist - Hardcopy Received
Certificate of Independence	FL17326_R2_COI_ERP14001.2 2014 Evaluation for hybrid installation of Capistrano Malibu and Bel Air.pdf

Referenced Standard and Year (of Standard)

Standard	Year
ASTM C 1492	2003
TAS 100	1995
TAS 101	1995
TAS 102	1995
TAS 112	1995

Equivalence of Product Standards Certified By

Sections from the Code

Product Approval Method	Method 1 Option D
Date Submitted	12/14/2016
Date Validated	12/15/2016
Date Pending FBC Approval	12/18/2016
Date Approved	02/07/2017

Summary of Products

FL #	Model, Number or Name	Description
17326.1	Capistrano, Malibu and Bel Air	Eagle Hybrid Installation

Limits of Use
Approved for use in HVHZ: Yes
Approved for use outside HVHZ: Yes
Impact Resistant: N/A
Design Pressure: N/A
Other: See Evaluation Report for limitations of use.

Installation Instructions
FL17326_R2_II_ERP14001.2 2014 Evaluation for hybrid installation of Capistrano Malibu and Bel Air.pdf
Verified By: Zachary R. Priest 74021
Created by Independent Third Party: Yes

Evaluation Reports
FL17326_R2_AE_ERP14001.2 2014 Evaluation for hybrid installation of Capistrano Malibu and Bel Air.pdf
Created by Independent Third Party: Yes

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CREEK
TECHNICAL SERVICES, LLC

Certificate of Authorization No. 29824
17520 Edinburgh Dr
Tampa, FL 33647
(813) 480-3421

EVALUATION REPORT

FLORIDA BUILDING CODE 5TH EDITION (2014)

Issued December 12, 2016

Manufacturer: EAGLE ROOFING PRODUCTS FLORIDA LLC
1575 E CR 478
Sumterville, FL 33585
(800) 400-4235
http://www.eagleroofing.com

Manufacturing Plants: Sumterville, FL

Quality Assurance: Architectural Testing, Inc. (QUA1844)

SCOPE

Category: Roofing
Subcategory: Roofing Tiles
Code Sections: 1507.3.5, 1507.3.7, 1523.6.5.2, 1523.6.5.2.2, 1523.6.5.2.3
Properties: Physical Properties, Attachment Requirements, Wind Driven Rain, Static Uplift Resistance

REFERENCES

Entity	Report No.	Standard	Year
American Test Lab of South Florida Inc (TST3782)	RT0610.01-14	TAS 112	1995
American Test Lab of South Florida Inc (TST3782)	RT0610.01-14	ASTM C 1492	2003
American Test Lab of South Florida Inc (TST3782)	RT0610.02-14	TAS 112	1995
American Test Lab of South Florida Inc (TST3782)	RT0610.02-14	ASTM C 1492	2003
American Test Lab of South Florida Inc (TST3782)	RT0610.03-14	TAS 112	1995
American Test Lab of South Florida Inc (TST3782)	RT0610.03-14	ASTM C 1492	2003
American Test Lab of South Florida Inc (TST3782)	RT0603.01-13	TAS 101/TAS 102	1995
PRI Construction Materials Technologies (TST5878)	ERPF-057-02-01	TAS 101/TAS 102	1995
PRI Construction Materials Technologies (TST5878)	ERPF-058-02-01	TAS 101/TAS 102	1995
PRI Construction Materials Technologies (TST5878)	ERPF-059-02-01	TAS 100	1995
PRI Construction Materials Technologies (TST5878)	ERPF-060-02-01	TAS 100	1995
PRI Construction Materials Technologies (TST5878)	ERPF-061-02-01	TAS 100	1995
PRI Construction Materials Technologies (TST5878)	ERPF-072-02-01 Rev 1	TAS 101/TAS 102	1995
PRI Construction Materials Technologies (TST5878)	ERPF-072-02-02.2 Rev 1	TAS 101/TAS 102	1995
PRI Construction Materials Technologies (TST5878)	ERPF-072-02-03.1 Rev 1	TAS 101/TAS 102	1995

PRODUCT DESCRIPTION

Capistrano

Profile: ASTM C 1492, TAS 112, high profile, concrete roof tile
Description: TAS 112 type 1a, high profile, interlocking class III concrete tile
Dimensions: 17.0" x 12.25" x 3.0"

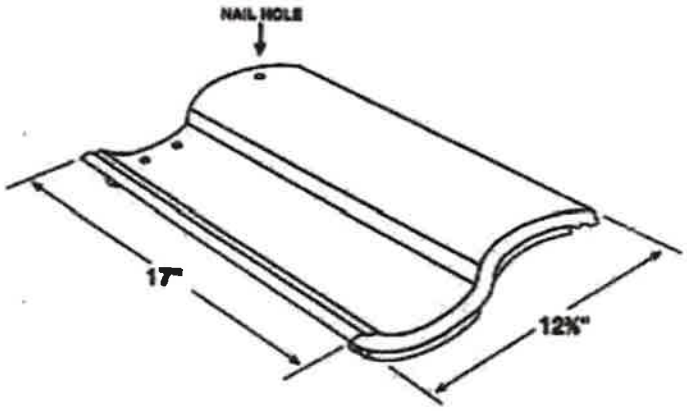


Figure 1. Capistrano

Malibu

Profile: ASTM C 1492, TAS 112, medium profile, concrete roof tile
Description: TAS 112 type 1b, low profile, interlocking class III concrete tile
Dimensions: 17.0" x 12.375" x 2.125"

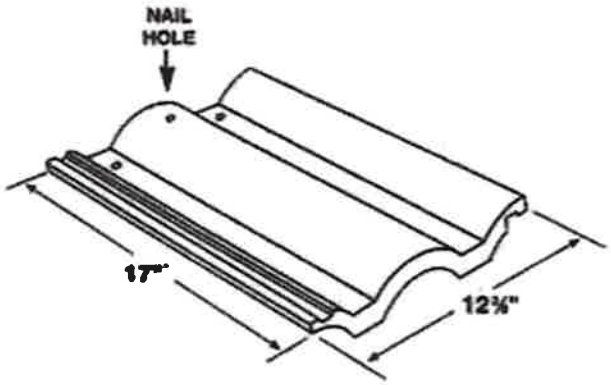


Figure 2. Malibu

Bel Air

Profile: ASTM C 1492, TAS 112, flat profile, concrete roof tile
Description: TAS 112 type 3a, flat profile, interlocking class III concrete tile
Dimensions: 17.0" x 12.375" x 1.25"

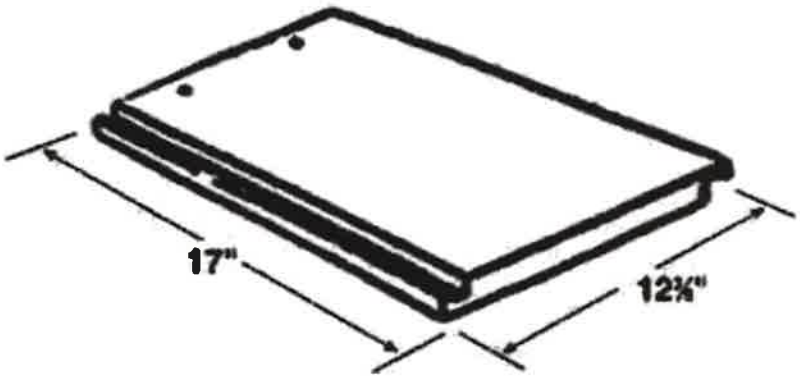


Figure 3. Bel Air

APPLICATION METHOD

Eagle Hybrid Installation for Capistrano, Malibu, and Bel Air Concrete Roof Tile	
Slope:	Limited to slopes 3:12 or greater in the HVHZ; Outside the HVHZ, shall be in accordance with the recommendations of the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, Fifth Edition Revised or RAS 118.
Roof Deck:	Solid or closely fitted min. 15/32-inch plywood sheathing for new and existing construction at max. 24 in. span; In the HVHZ, new construction shall be min. 19/32 in. plywood at max. 24 in. span; Designed by others in accordance with FBC requirements.
Underlayment:	Installed in accordance with FBC requirements. In the HVHZ, the minimum underlayment shall be Hot Mop 30/90 installed as described in RAS 118 Section 3.01.
Attachment:	All tiles shall be secured into the factory located fastener holes by two (2) #8 x min. 3-inch Simpson Strong-Tie Quik Drive WSCD Roof Tile Screws with sufficient length to penetrate through the plywood deck a minimum 1/2-inch. A minimum 6-inch x1-inch x 1-inch paddy of Dow TILE BOND™ shall be placed atop any fasteners within the 3-inch head lap of the "bottom" tiles as shown in Figure 1 or Figure 2. The "upper" tiles shall be set immediately into the adhesive paddy. All penetrations in the underlayment shall be sealed in accordance with RAS 118 (HVHZ) and FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, Fifth Edition Revised (non-HVHZ).

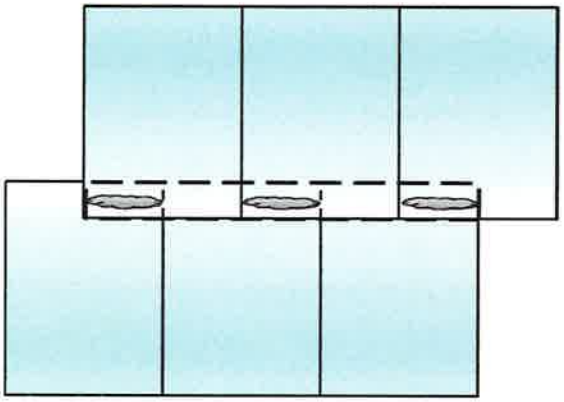


Figure 1. Adhesive Paddy Location- Following the tile profile from halfway across the tile to the edge of the upper right side.

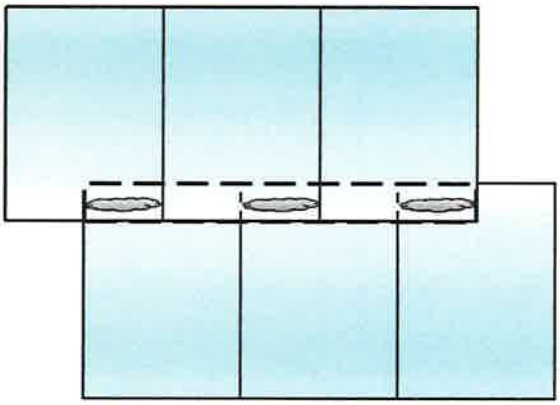


Figure 2. Alternate Adhesive Paddy Location- Following the tile profile from halfway across the tile to the edge of the upper left side.

Data for Attachment Calculations									
Roof Tile	Nominal Weight (W) and Dimensions (l x w)			Aerodynamic Multipliers λ (ft^3)	Restoring Moments due to Gravity - M_g (ft-lbf) Direct Deck				
	W (lbf)	L (ft)	w (ft)	Direct Deck Application	3":12"	4":12"	5":12"	6":12"	≥7":12"
Capistrano	9.7	1.42	1.02	0.33	6.83	6.75	6.65	6.52	6.38
Malibu	9.2	1.42	1.03	0.33	6.47	6.37	6.24	6.09	5.93
Bel Air	11.8	1.42	1.03	0.33	7.35	7.25	7.11	6.95	6.76

Attachment Resistance Expressed as a Moment Hybrid installation system								
Roof Tile	Fastener[1]			Adhesive				M_f (ft-lbf)
	Type	Count	Size	Adhesive	Paddy Size[2]	Paddy Weight[2]	Paddy Location	
Capistrano	Screw	2	#8	Dow TILE BOND™	6"x1"x1"	13.7g	Upper Right (Fig. 1)	47
	Screw	2	#8	Dow TILE BOND™	6"x1"x1"	10.1g	Upper Left (Fig. 2)	67
Malibu	Screw	2	#8	Dow TILE BOND™	6"x1"x1"	10.4g	Upper Right (Fig. 1)	73
	Screw	2	#8	Dow TILE BOND™	6"x1"x1"	9.6g	Upper Left (Fig. 2)	87
Bel Air	Screw	2	#8	Dow TILE BOND™	6"x1"x1"	10.4g	Upper Right (Fig. 1)	66
	Screw	2	#8	Dow TILE BOND™	6"x1"x1"	10.5g	Upper Left (Fig. 2)	93

Notes: 1) Simpson Strong-Tie Quik Drive WSCD Roof Tile Screw shall be min. 3-inch with sufficient length to penetrate through the plywood deck a min. 1/2-inch
2) Minimum dimensions and weight for adhesive application

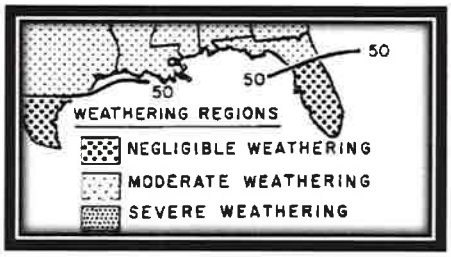
LABELING

1) All tiles shall bear the identifiable marking of the manufacturer's name or logo as follows:

EAGLE® FLORIDA

LIMITATIONS

1) Fire Classification is not within the scope of this evaluation.
2) Installation of the evaluated products shall comply with FBC Section 1507.3, FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, Fifth Edition Revised and the manufacturer's published application instructions. Installations in the HVHZ shall comply with RAS 118.
3) All products listed in this report shall be manufactured under a quality assurance program in compliance with Rule 61G20-3.
4) Installation of the evaluated products shall be limited to projects in areas subjected to weathering indices of 50 or greater as illustrated in ASTM C 1492-03, figure 1 (see below).



COMPLIANCE STATEMENT

The products evaluated herein by Zachary R Priest P.E. have demonstrated compliance with the Florida Building Code 5th Edition (2014) as evidenced in the referenced documents submitted by the named manufacturer.

2016.12.12
16:16:15
-05'00'

Zachary R. Priest, P.E.
Florida Registration No. 74021
Organization No. ANE9641

Reviewed for Code Compliance
Universal Engineering Sciences

CERTIFICATION OF INDEPENDENCE

CREEK Technical Services, LLC does not have, nor will it acquire, a financial interest in any company manufacturing or distributing products under this evaluation.

CREEK Technical Services, LLC is not owned, operated, or controlled by any company manufacturing or distributing products under this evaluation.

Zachary R. Priest, P.E. does not have, nor will acquire, a financial interest in any company manufacturing or distributing products under this evaluation.

Zachary R. Priest, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.

END OF REPORT

FL #	FL5259-R26
Application Type	Revision
Code Version	2014
Application Status	Approved
Comments	
Archived	☐
Product Manufacturer	POLYGLASS USA
Address/Phone/Email	150 Lyon Drive Fernley, NV 89408 (570) 384-1230 Ext 242 jakins@polyglass.com
Authorized Signature	James Akins jakins@polyglass.com
Technical Representative	James E. Akins
Address/Phone/Email	555 Oakridge Road Humboldt Ind. Park Hazleton, PA 18202 (800) 894-4563 akins@polyglass.com
Quality Assurance Representative	Ariel Lender
Address/Phone/Email	1111 W. Newport Center Drive Deerfield Beach, FL 33442 (954) 233-1230 ALender@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	04/24/2018
Validated By	John W. Knezevich, PE ☑ Validation Checklist - Hardcopy Received
Certificate of Independence	FL5259_R26_COI_2017_01_COI_Nieminen.pdf

Reviewed for Code Compliance Universal Engineering Sciences

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
UL 1897	2004

Equivalence of Product Standards Certified By

Sections from the Code

Product Approval Method	Method 1 Option D
Date Submitted	03/13/2017
Date Validated	03/22/2017
Date Pending FBC Approval	03/22/2017
Date Approved	06/13/2017

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_R26_II_2017_03_FINAL_ER_POLYGLASS_UNDERLAYMENTS_FL5259-R26.pdf Verified By: Robert Nieminen PE-59166 Created by Independent Third Party: Yes **Evaluation Reports** FL5259_R26_AE_2017_03_FINAL_ER_POLYGLASS_UNDERLAYMENTS_FL5259-R26.pdf Created by Independent Third Party: Yes	

Back Next

EXTERIOR RESEARCH & DESIGN, LLC.
Certificate of Authorization #9503
353 CHRISTIAN STREET, UNIT #13
OXFORD, CT 06478
(203) 262-9245

EVALUATION REPORT

Polyglass USA, Inc.
150 Lyon Drive
Fernley, NV 98408
(570) 384-1230

Evaluation Report P12060.02.09-R22
FL5259-R26
Date of Issuance: 02/24/2009
Revision 22: 03/13/2017

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.

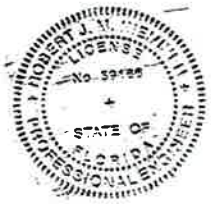
ADVERTISEMENT: The Evaluation Report number preceded by the words "Trinity|ERD Evaluated" may be displayed in advertising literature. If any portion of the Evaluation Report is displayed, then it shall be done in its entirety.

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 14.

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 03/13/2017. 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.
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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.

Regulatory Compliance Universal Engineering Sciences

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 **5th Edition (2014) 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:

Section	Property	Standard	Year
1504.3.1	Wind Uplift	FM 4474	2004
1504.3.1	Wind Uplift	UL 1897	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:

Entity	Examination	Reference	Date
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	08/19/2001
ERD (TST 6049)	Wind Uplift	11776.06.02	01/16/2003
ERD (TST 6049)	Physical Properties	02200.07.03	09/14/2003
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
ERD (TST 6049)	Physical Properties	6020.09.14-4	09/08/2014
ERD (TST 6049)	Physical Properties	6020.09.14-5	09/08/2014
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)	Physical Properties	PLYG-SC8080.05.15-1	05/20/2015
ERD (TST 6049)	Wind Uplift	PLYG-SC8905.05.16-1	05/17/2016
ERD (TST 6049)	Physical Properties	PLYG-SC8080.07.16	07/16/2016
ERD (TST 6049)	Wind Uplift	PLYG-SC12025.10.16	10/12/2016
ERD (TST 6049)	Physical Properties	PLYG-SC11900.03.17	03/10/2017
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	Exp. 04/24/2018

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.

4.1.3 **Polyglass G2 Base** is a fiberglass-reinforced, asphaltic base sheet.

4.1.4 **Polyglass APP Base** is a fiberglass-reinforced, APP 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 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/m^2 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.

4.2.10 **Polystick MU-X** is a nominal 54-mil thick dual-layer rubberized asphalt waterproofing membrane, fiberglass reinforced, with a polypropylene film surface; meets AC188 and physical requirements of ASTM D1970 (See Section 5.8).

4.3 Mechanically Fastened and/or Bonded Underlayments:

4.3.1 **Elastoflex G TU** is a polyester reinforced, modified bitumen tile underlayment composed of an sand-surfaced SBS modified bitumen back-side and granule-surfaced APP modified bitumen top-side. **Elastoflex G TU** is for use as an alternate to **"Mineral Surface Roll Roofing" (ASTM D6380, Class M) in the "Single Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened tile roof systems or Hot Asphalt **applied "Cap Sheet" in the "Two Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened or adhered tile roof systems.

4.3.2 **Elastoflex S6 G** and **Elastoflex S6 G FR** are polyester reinforced, SBS modified bitumen cap sheets; meet ASTM D6164. **Elastoflex S6 G** and **Elastoflex S6 G FR** are for use as an alternate to **"Mineral Surface Roll Roofing" (ASTM D6380, Class M) in the "Single Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened tile roof systems. **Elastoflex S6 G** is for use as an alternate to Hot Asphalt **applied "Cap Sheet" in the "Two Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened or adhered tile roof systems. **Elastoflex S6 G FR** is for use as an alternate to Hot Asphalt **applied "Cap Sheet" in the "Two Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened tile roof systems.

4.3.3 **Polyflex G** and **Polyflex G FR** are polyester reinforced, APP modified bitumen cap sheets; meet ASTM D6222. **Polyflex G** is for use as an alternate to Heat Applied **"Cap Sheet" in the "Two Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened or adhered tile roof systems. **Polyflex G FR** is for use as an alternate to Heat Applied **"Cap Sheet" in the "Two Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened tile roof systems.

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 Authority Having Jurisdiction 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 Sheet in 2-ply system)	Yes (Base Sheet in 2-ply system)	Yes	Yes	Yes
Elastobase P	Yes	Yes (Base Sheet in 2-ply system)	Yes (Base Sheet in 2-ply system)	Yes	Yes	Yes
Polyglass G2 Base	No	Yes (Base Sheet in 2-ply system)	Yes (Base Sheet in 2-ply system)	No	No	No
Polyglass APP Base	No	Yes (Base Sheet in 2-ply system)	Yes (Base Sheet in 2-ply system)	No	No	No
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
Polystick MU-X	Yes	No	No	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
Elastoflex G TU	Yes	Yes	Yes (See 5.5.1)	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 / underlayment combinations.**

TABLE 1A: ALLOWABLE TILE ADHESIVE / UNDERLAYMENT COMBINATIONS[1]

Adhesive	Florida Product Approval	Underlayments
Convenience Products' Touch 'n Seal StormBond Roof Tile Adhesive	FL14506	Polystick TU Plus, Polystick TU Max
Dow TileBond™	FL717	Polystick TU P, Polystick TU Plus, Polyflex SAP or Tile Pro
ICP Adhesives Polyset® AH-160	FL6332	Polystick TU P, Polystick TU Plus, Polystick TU Max, Polystick Tile Pro, Elastoflex G TU, 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)
ICP Adhesives Polyset® RTA-1	FL6276	Polystick TU P, Polystick TU Plus, Polystick TU Max, Polystick Tile Pro, Elastoflex G TU, 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)
Polyglass PolyLok Roof Tile Adhesive	FL17855	Polystick TU Plus or Polystick TU Max

[1] Refer to Tile Manufacturer's or Adhesive Manufacturer's Florida Product Approval for Overturning Moment Resistance Performance.

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

- ASTM D41 primed structural concrete.

Polyflex G or Polyflex 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 G TU, Elastoflex S6 G or Elastoflex S6 G FR in hot asphalt to:

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

Polyflex G or Polyflex 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 G TU, Elastoflex S6 G or Elastoflex S6 G FR in hot asphalt to:

- ASTM D226, Type I or II felt; Elastobase; Elastobase P, Mule-Hide Nail Base or Polyglass G2 Base.

Polyflex G or Polyflex G FR torch-applied to:

- Elastobase; Elastobase P, Mule-Hide Nail Base, Polyglass G2 Base or Polyglass APP 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 Authority Having Jurisdiction.
Primer: None
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 = **-97.5 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
Primer: 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 and back-nailed within the selvedge-edge side laps using 12 ga. x **1¼" ring shank nails through 32 ga., 1-5/8" diameter tin caps spaced** 12-inch o.c.

5.6.4.3 Maximum Design Pressure = **-105 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
Primer: WB-3000
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 and back-nailed within the selvedge-edge side laps using 12 ga. x **1¼" ring shank nails through 32 ga., 1-5/8" diameter tin caps spaced** 12-inch o.c.

5.6.4.4 Maximum Design Pressure = **-135 psf**:

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

5.6.4.5 Maximum Design Pressure = **-315 psf**:

Deck: Structural concrete to meet project requirements to satisfaction of Authority Having Jurisdiction.
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.

5.6.4.6 Maximum Design Pressure = **-622.5 psf**:

Deck: Structural concrete to meet project requirements to satisfaction of Authority Having Jurisdiction.
Primer: PG100 or ASTM D41
Underlayment: Elastoflex G TU or Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.

5.6.4.7 Maximum Design Pressure = **-30.0 psf***:

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

5.6.4.8 Maximum Design Pressure = **-37.5 psf***:

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

5.6.4.9 Maximum Design Pressure = **-37.5 psf***:

Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU or Elastoflex S6 G, applied in full mopping of hot asphalt.

5.6.4.10 Maximum Design Pressure = **-45 psf***:

Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU, applied in full mopping of hot asphalt.

5.6.4.11 Maximum Design Pressure = **-45 psf***:

Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU or Elastoflex S6 G, applied in full mopping of hot asphalt.

5.6.4.12 Maximum Design Pressure = **-45 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU or Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.

5.6.4.13 Maximum Design Pressure = **-52.5 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU or Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.

5.6.4.14 Maximum Design Pressure = **-52.5 psf**:

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

5.6.4.15 Maximum Design Pressure = **-52.5 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU or Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.

5.6.4.16 Maximum Design Pressure = **-60 psf**:

Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU or Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.

5.6.4.17 Maximum Design Pressure = **-60 psf**:

Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU or Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.

5.6.4.18 Maximum Design Pressure = **-67.5 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
Base Sheet: Polyglass G2 Base or Polyglass APP Base *(requires use of torch-applied underlayment)*
Fasteners: 12 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 four (4) equally spaced staggered center rows.
Underlayment: Elastoflex G TU or Elastoflex S6 G, applied in full mopping of hot asphalt or torch-applied or Polyflex G, torch-applied.

5.6.4.19 Maximum Design Pressure = **-75 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
Base Sheet: Polyglass G2 Base or Polyglass APP Base *(requires use of torch-applied underlayment)*
Fasteners: Dekfast #14 with Dekfast Hex plates, OMG #14 HD with OMG 3" Galvalume Steel Plates, OMG Roofgrip #14 with OMG Flat Bottom Plates (AccuTrac), Trufast HD with Trufast 3-inch Insulation Plates or Simplex MAXX Cap Fasteners
Spacing: 10-inch o.c. at the 4-inch wide side laps and 10-inch o.c. at three (3) equally spaced staggered center rows.
Underlayment: Elastoflex G TU or Elastoflex S6 G, applied in full mopping of hot asphalt or torch-applied or Polyflex G, torch-applied.

5.6.4.20 Maximum Design Pressure = **-90 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU or Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.

5.6.4.21 Maximum Design Pressure = **-90 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU or Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.

5.6.4.22 Maximum Design Pressure = **-90 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU or Elastoflex S6 G, applied in full mopping of hot asphalt.

5.6.4.23 Maximum Design Pressure = **-90 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
Base Sheet: Polyglass G2 Base or Polyglass APP Base *(requires use of torch-applied underlayment)*
Fasteners: **Dekfast #14 with Dekfast Hex plates, OMG #14 HD with OMG 3" Galvalume Steel Plates, OMG Roofgrip #14 with** OMG Flat Bottom Plates (AccuTrac), Trufast HD with Trufast 3-inch Insulation Plates or Simplex MAXX Cap Fasteners
Spacing: 9-inch o.c. at the 4-inch wide side laps and 9-inch o.c. at four (4) equally spaced staggered center rows.
Underlayment: Elastoflex G TU or Elastoflex S6 G, applied in full mopping of hot asphalt or torch-applied or Polyflex G, torch-applied.

5.6.4.24 Maximum Design Pressure = **-97.5 psf**:

Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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.

5.6.4.25 Maximum Design Pressure = **-105 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU or Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.

5.6.4.26 Maximum Design Pressure = **-112.5 psf**:

Deck: Min. 19/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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.

5.6.4.27 Maximum Design Pressure = **-120 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU or Elastoflex S6 G, applied in full mopping of hot asphalt or Polyflex G, torch-applied.

5.6.4.28 Maximum Design Pressure = **-120 psf**:

Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
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 G TU or Elastoflex S6 G, applied in full mopping of hot asphalt.

5.6.4.29 All other direct-deck, adhered Polyglass underlayment systems beneath foam-on tile systems carry a Maximum Design Pressure of -45 psf.

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5.6.4.30 For mechanically attached Base Sheet, the maximum design pressure for the selected assembly shall meet or exceed that required under FRSA/TRI April 2012 (04-12), Appendix A, Table 1A.

Alternatively, the maximum design pressure for the selected assembly shall meet or exceed the Zone 1 design pressure determined in accordance with FBC 1609. In this case, 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 ANSI/SPRI WD1, FM Loss Prevention Data Sheet 1-29 and Roofing Application Standard RAS 117. Assemblies marked with an asterisk* carry the limitations set forth in Section 2.2.10.1 of FM Loss Prevention Data Sheet 1-29 (January 2016) for Zone 2/3 enhancements.

5.7 Exposure Limitations:

Elastobase, Elastobase P, Polyglass G2 Base or Polyglass APP Base shall not be left exposed for longer than 30-days after installation.

Polystick IR-Xe or Polystick MU-X shall not be left exposed for longer than 90-days after installation.

Polystick MTS, MTS PLUS, TU P, TU Plus, TU Max, Dual Pro, Tile Pro or Elastoflex G TU 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 Elastoflex S6 G FR or Polyflex G or Polyflex 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.

5.8 **Polystick MU-X** has been found through comparative testing to have a lesser coefficient of friction than ASTM D226 roofing felt in a dry condition, tested at standard laboratory conditions. Agreement between purchaser and seller, as set forth in Section 5.3, Note 1 of ASTM D1970-09, should be established as to slip resistance.

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 G TU**, **Elastoflex S6 G** or **Elastoflex S6 G FR** in hot asphalt or **Polyflex G** or **Polyflex 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, Dual Pro, Tile Pro or MU-X or Polyflex SAP, Polyflex SAP FR, Mule-Hide SA-APP Cap Sheet or Mule-Hide SA-APP Cap Sheet (FR):

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.

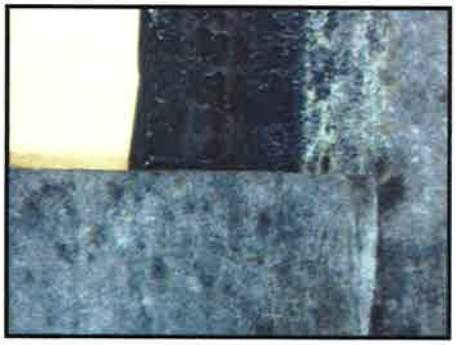
Note: **Polystick MU-X** has been found through comparative testing to have a lesser coefficient of friction than ASTM D226 roofing felt in a dry condition, tested at standard laboratory conditions. Agreement between purchaser and seller, as set forth in Section 5.3, Note 1 of ASTM D1970-09, should be established as to slip resistance.

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 Ovelap 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 or Polystick MU-X)***:

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**, **Tile Pro**, **MU-X** 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**, **Tile Pro** 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 G TU, Elastoflex S6 G or Elastoflex S6 G FR:

6.5.1 **Elastoflex G TU**, **Elastoflex S6 G** or **Elastoflex S6 G FR** shall be installed in compliance with current Polyglass published installation requirements. For use in tile applications:

- ✓ **Elastoflex G TU** is for use as an alternate to **"Mineral Surface Roll Roofing" (ASTM D6380, Class M) in the "Single Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened tile roof systems or the Hot Asphalt **applied "Cap Sheet" in the "Two Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened or adhered tile roof systems.
- ✓ **Elastoflex S6 G** is for use as an alternate to **"Mineral Surface Roll Roofing" (ASTM D6380, Class M) in the "Single Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened tile roof systems or the Hot Asphalt **applied "Cap Sheet" in the "Two Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened or adhered tile roof systems.
- ✓ **Elastoflex S6 G FR** is for use as an alternate to **"Mineral Surface Roll Roofing" (ASTM D6380, Class M) in the "Single Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened tile roof systems or the Hot Asphalt **applied "Cap Sheet" in the "Two Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened tile roof systems.

6.5.2 For hot-asphalt-applications, **Elastoflex G TU**, **Elastoflex S6 G** or **Elastoflex 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 Polyflex G FR:

6.6.1 **Polyflex G** or **Polyflex G FR** shall be installed in compliance with current Polyglass published installation requirements. For use in tile applications:

- ✓ **Polyflex G** is for use as an alternate to the Heat **Applied "Cap Sheet" in the "Two Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened or adhered tile roof systems (Base Sheet Limited per 5.6.3).
- ✓ **Polyflex G FR** is for use as an alternate to the Heat Applied **applied "Cap Sheet" in the "Two Ply System" from** FRSA/TRI April 2012 (04-12) beneath mechanically fastened tile roof systems (Base Sheet Limited per 5.6.3).

6.6.2 **Polyflex G** or **Polyflex 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.

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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 -

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STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CONSTRUCTION INDUSTRY LICENSING BOARD
1940 NORTH MONROE STREET
TALLAHASSEE FL 32399-0783

(850) 487-1395

LANIER, JACK DOUGLAS
COLLIS ROOFING, INC.
P O BOX 520668
LONGWOOD FL 32752-0668

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STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CCC058022 ISSUED: 06/06/2016

CERTIFIED ROOFING CONTRACTOR
LANIER, JACK DOUGLAS
COLLIS ROOFING, INC.

IS CERTIFIED under the provisions of Ch.489 FS.
Expiration date : AUG 31, 2018 L1606060000724

DETACH HERE

RICK SCOTT, GOVERNOR

KEN LAWSON, SECRETARY

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

LICENSE NUMBER	
CCC058022	

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

LANIER, JACK DOUGLAS
COLLIS ROOFING, INC.
485 COMMERCE WAY
LONGWOOD FL 32750

ISSUED: 06/06/2016 DISPLAY AS REQUIRED BY LAW SEQ # L1606060000724

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 12/13/2016

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	CONTACT NAME:
Frank H. Furman, Inc. 1314 East Atlantic Blvd. P. O. Box 1927 Pompano Beach FL 33061	PHONE (A/C, No, Ext): 800-344-4838 FAX (A/C, No): (954) 943-5417 E-MAIL ADDRESS:

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
Collis Roofing Inc P. O. Box 520668 Longwood FL 32752	INSURER A: First Specialty Insurance Corp	34916
	INSURER B: U S Fire Insurance Company	21113
	INSURER C: American Guarantee & Liability Ins	26247
	INSURER D: FRSA Self Insurer Fund	N/A
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** **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		
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR X Contractual Included X XCU & Broad Form PD Incl GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT LOC OTHER			IRG200225802	1/1/2017	1/1/2018	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ $ $ $ $ $ $	1,000,000 50,000 EXCLUDED 1,000,000 2,000,000 2,000,000
B	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS			1337400099	1/1/2017	1/1/2018	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) Personal Injury Protection	$ $ $ $ $	1,000,000 10,000
C	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $			AUC914077110	1/1/2017	1/1/2018	EACH OCCURRENCE AGGREGATE $	$ $ $	3,000,000 3,000,000
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		870033379	1/1/2017	1/1/2018	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ $	1,000,000 1,000,000 1,000,000

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

CERTIFICATE HOLDER	CANCELLATION
(407) 240-2222 City of Belle Isle 1600 Nela Ave. Belle Isle, FL 32809	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 Dirk DeJong/JC

2016 - 2017

9/13/16

City of Longwood
175 W. Warren Avenue, Longwood, FL 32750

LOCAL BUSINESS TAX

Receipt # 17-00011630

LOCATION: **485 COMMERCE WAY**

For the Occupation:
CONTRACTOR/OVER 30 EMP

COLLIS ROOFING, INC.
P.O. BOX 520668
LONGWOOD FL 32752

LANIER, J. DOUGLAS

STATE #			CCC058022
CITY TAX		$	200.00
ADMINISTRATIVE FEE		$	10.00
TRANSFER FEE		$	.00
PENALTY	%	$	.00
COUNTY TAX		$	45.00
TOTAL$			255.00

CITY OF LONGWOOD, FLORIDA IN SEMINOLE COUNTY * SEAL

YEAR: 10/16-09/17

DIRECTOR OF FINANCE

RECEIPT MUST BE CONSPICUOUSLY DISPLAYED AT BUSINESS LOCATION.

COLLIS ROOFING, INC.
P.O. BOX 520668
LONGWOOD FL 32752