



City of Belle Isle Job Site Card **Roof PERMIT** 2018-08-085

PERMIT MUST BE POSTED ON SITE - A permit expires in 6 months if approved inspections are not recorded /scheduled within that time frame. You are responsible for scheduling and keeping track of all your inspections -

Permit Number 2018-08-085

Issue Date 8/29/2018

Site Address: 2520 Hoffner Ave 32809

Parcel Number: 18-23-30-8856-05-110

Class: Residential

Subdivision:

Description of Work: Re-roof **2600 SQFT - METAL**

Issued To: Smothers Mark K / HOMEOWNER

Business Phone: 407 383-1777

Name: Smothers Mark K

Contractor License: N/A

Payment Date & Method: **8 / 29 / 2018** Picked up by Mark S.

Visa Master Card Amex Discover Check / Money Order # 8291

Schedule Inspections via Email at: BIDScheduling@universalengineering.com

SCHEDULE INSPECTIONS BY 3:00 PM CUT OFF TIME

Inspection Results Will Be Sent Out the Following Business Day

"WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR 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."

ROOF	INSPECTOR	DATE	COMMENTS
NEW ROOFS ONLY Code 700 Deck Nailing, Dry-In, Flashing			
Both new & re-roof Code 710 In - Progress			
Both new & re-roof Code 720 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 3:00 p.m.

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.

RECEIVED
AUG 28 2018
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: Aug 27, 2018 ROOF PERMIT NUMBER 208-08-085
PLEASE PRINT. The undersigned hereby applies for a permit to make installations as indicated below:

Project Address 2520 Hoffner Ave. Belle Isle, FL 32809 32812
Property Owner MARK Smothers Phone 407-383-1777
Property Owner's Mailing Address 2520 Hoffner Ave City Belle Isle
State FL Zip Code 32809 Parcel Id Number: 18-23-30-8856-05-110

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 for the Covering & Underlayment Products

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

Roof Square Footage: 2,1600 Sq Ft. Number of Stories: 1 Job Valuation: \$ 15,000.⁰⁰
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 Mark Smothers LICENSE # _____
LICENSE HOLDER NAME MARK Smothers COMPANY NAME Property Owner
Street Address 2520 HOFFNER AVE
City Belle Isle State FL Zip Code 32809 Phone Number 407-383-1777
Email Address mark.smothers@me.com
Zoning Fee \$ _____

Building Official: SM Date 8-29-18
Verified Contractor's Licenses & Insurance are on file ja Date 8-28-2018

Building Fee \$ 30.00
Review Fee \$ 95.00
1% BCAIB Fee \$ 2.00
1.5% DCA Fee \$ 2.00
Total Permit Fee \$ 129.00

✓ Owners Builder Disclosure
✓ NOC
✓ POA

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.

PAID
8-29-2018
VISA 8291

Permit Number: 2018-08-085
Folio/Parcel Identification Number: _____
Prepared by: _____



Return to: _____

NOTICE OF COMMENCEMENT

State of Florida, County of Orange
The undersigned hereby gives notice that improvement will be made to certain real property, and in accordance with Chapter 713, Florida Statutes, the following information is provided in this Notice of Commencement.

- Description of property** (legal description of the property, and street address if available)
2520 Hoffner Ave. Bell Isle FL 32809
- General description of improvement**
Roof Replacement (SHINGLES)
- Owner information or Lessee information if the Lessee contracted for the improvement**
Name MARK SMOTHERS
Address 2520 Hoffner Ave Bell Isle FL 32809
Interest in Property Home Owner
Name and address of fee simple titleholder (if different from Owner listed above)
Name SAA
Address _____
- Contractor**
Name SELF Telephone Number _____
Address _____
- Surety** (if applicable, a copy of the payment bond is attached)
Name NA Telephone Number _____
Address _____ Amount of Bond \$ _____
- Lender**
Name SELF PAY Telephone Number _____
Address _____
- Persons within the State of Florida designated by Owner upon whom notices or other documents may be served as provided by §713.13(1)(a)7, Florida Statutes.**
Name None Telephone Number _____
Address _____
- In addition to himself or herself, Owner designates the following to receive a copy of the Lienor's Notice as provided in §713.13(1)(b), Florida Statutes.**
Name NA Telephone Number _____
Address _____
- Expiration date of notice of commencement** (the expiration date may not be before the completion of construction and final payment to the contractor, but will be 1 year from the date of recording unless a different date is specified) SEPT 3, 2018

WARNING TO OWNER: ANY PAYMENTS MADE BY THE OWNER AFTER THE EXPIRATION OF THE NOTICE OF COMMENCEMENT ARE CONSIDERED IMPROPER PAYMENTS UNDER CHAPTER 713, PART 1, SECTION 713.13, FLORIDA STATUTES, AND CAN 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 COMMENCING WORK OR RECORDING YOUR NOTICE OF COMMENCEMENT.

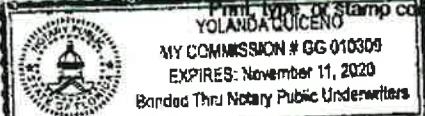
Under penalty of perjury, I declare that I have read the foregoing notice of commencement and that the facts stated in it are true to the best of my knowledge and belief.

Mark Smothers Signature of Owner or Lessee, or Owner's or Lessee's Authorized Officer/Director/Partner/Manager
OWNER of Property Signatory's Title/Office

The foregoing instrument was acknowledged before me this 27th day of August 2018 by Mark Smothers
as Homeowner for _____
Type of authority, e.g., officer, trustee, attorney in fact Name of party on behalf of whom instrument was executed

Yolanda Quiceno Signature of Notary Public - State of Florida

Print, Type, or Stamp commissioned name of Notary Public





City of Belle Isle

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Tel 407-581-8161 * Fax 407-581-0313 * www.universalengineering.com

OWNER BUILDER DISCLOSURE STATEMENT

Per Florida Statute 455.228:

**Homeowners hiring unlicensed Contractors may be
subject a fine of up to \$5,000.00!**

Before me this day personally appeared MARK Smothers, who being duly sworn, deposes, and says as follows. "I hereby acknowledge that I have read and fully understand the individual provisions of this instrument."

1. I understand that state law requires construction to be done by a licensed contractor and have applied for an owner-builder permit under an exemption from the law. The exemption specifies that I, as the owner of the property listed, may act as my own contractor with certain restrictions even though I do not have a license MS Initial
2. I understand that building permits are not required to be signed by a property owner unless he or she is responsible for the construction and is not hiring a licensed contractor to assume responsibility. MS Initial
3. I understand that, as an owner-builder, I am the responsible party of record on a permit. I understand that I may protect myself from potential financial risk by hiring a licensed contractor and having the permit filed in his or her name instead of my own name. I also understand that a contractor is required by law to be licensed in Florida and to list his or her license numbers on permits and contracts. MS Initial
4. I understand that I may build or improve a one-family or two-family residence or a farm outbuilding. I may also build or improve a commercial building if the costs do not exceed \$75,000.00. The building or residence must be for my own use or occupancy. It may not be built or substantially improved for sale or lease. If a building or residence that I have built or substantially improved myself is sold or leased within 1 year after the construction is complete, the law will presume that I built or substantially improved it for sale or lease, which violates the exemption. MS Initial
5. I understand that, as the owner-builder, I must provide direct, onsite supervision of the construction. Initial MS
6. I understand that I may not hire an unlicensed person to act as my contractor or to supervise persons working on my building or residence. It is my responsibility to ensure that the persons whom I employ have the licenses required by law and by county or municipal ordinance. MS Initial
7. I understand that it is a frequent practice of unlicensed persons to have the property owner obtain an owner-builder permit, that erroneously implies that the property owner is providing his or her own labor and materials. I, as an owner-builder, may be held liable and subjected to serious financial risk for any injuries sustained by an unlicensed person or his or her employees while working on my property. My homeowner's insurance may not provide coverage for those injuries. I am willfully acting as an owner-builder and am aware of the limits of my insurance coverage for injuries to workers on my property. MS Initial
8. I understand that I may not delegate the responsibility for supervising work to a licensed contractor who is not licensed to perform the work being done. Any person working on my building who is not licensed must work under my direct supervision and must be employed by me, which means that I must comply with laws requiring the withholding of federal income tax and social security contributions under the Federal Insurance Contributions Act (FICA) and must provide workers' compensation for the employee. I understand that my failure to follow these laws may subject me to serious financial risk. MS Initial
9. I agree that, as the party legally and financially responsible for this proposed construction activity, I will abide by all applicable laws and requirements that govern owner-builders as well as employers. I also understand that the construction must comply with all applicable laws, ordinances, building codes, and zoning regulations. MS Initial
10. I understand that I may obtain more information regarding my obligations as an employer from the Internal Revenue Service, the United States Small Business Administration, the Florida Department of Financial Services, and the Florida Department of Revenue. I also understand that I may contact the Florida Construction Industry Licensing Board at (850)487-1395 or www.Call.Center@dbpr.state.fl.us for more information about licensed contractors. MS Initial

Owner Builder Disclosure Statement

- 11. I am aware of, and consent to, an owner-builder building permit applied for in my name and understand that I am the party legally and financially responsible for the proposed construction activity at the following address: Project Address: 2520 Hoffner Ave ORL FL/Belle Isle, 32809 MS Initial
12. I agree to notify the City of Belle Isle Building/Zoning Department immediately of any additions, deletions, or changes to any of the information that I have provided on this disclosure. MS Initial
13. FBC 105.3.6 requires asbestos abatement to be done by licensed contractors. You have applied for a permit under an exemption to that law. The exemption allows you, as the owner of your property, to act as your own asbestos abatement contractor even though you do not have a license. You must supervise the construction yourself. You may move, remove or dispose of asbestos-containing materials on a residential building where you occupy the building and the building is not for sale or lease, or the building is a farm outbuilding on your property. If you sell or lease such building within 1 year after the asbestos abatement is complete, the law will presume that you intended to sell or lease the property at the time the work was done, which is a violation of this exemption. You may not hire an unlicensed person as your contractor. Your work must be done according to all local, state and federal laws and regulations which apply to asbestos abatement projects. It is your responsibility to make sure that people employed by you have licenses required by state law and by county or municipal licensing ordinances. MS Initial

Licensed contractors are regulated by laws designed to protect the public. If you contract with a person who does not have a license, the Construction Industry Licensing Board and Department of Business and Professional Regulation may be unable to assist you with financial loss that you sustain as a result of a complaint. Your only remedy against an unlicensed contractor may be in civil court. It is also important for you to understand that, if any unlicensed contractor or employee of an individual or firm is injured while working on your property, you may be held liable for damages. If you obtain an owner-builder permit and wish to hire a licensed contractor, you will be responsible for verifying whether the contractor is properly licensed and the status of the contractor's workers' compensation coverage.

Before a building permit can be issued, this disclosure statement must be completed and signed by the property owner and returned to the local permitting agency responsible for issuing the permit. A copy of the property owner's driver license, the notarized signature of the property owner, or other type of verification acceptable to the local permitting agency is required when the permit is issued.

Signature: [Handwritten Signature] Print: MARK SMOTHERS
Signature: _____ Print: _____
Owner's Address: 2520 HOFFNER AVENUE
The foregoing instrument was acknowledged before me this 8, 27, 2018
by MARK SMOTHERS who is personally known to me / who produced the following Florida Drivers License as identification and who did not take an oath.
State of Florida / County of Orange
Notary Signature Yolanda Quiceno Seal: YOLANDA QUICENO MY COMMISSION # GG 010309 EXPIRES: November 11, 2020 Bonded Thru Notary Public Underwriters



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: Aug 27, 2018

PERMIT # 2018-08-085

PROJECT ADDRESS 2520 Hoffner Ave, Belle Isle Fl. Belle Isle, FL 32809 32812

As required by Florida Statute 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 #	Product Type	Manufacturer	Model/Series	FL Product Approval #
EXTERIOR DOORS				WALL PANELS			
Swinging				Sliding			
Sliding				Soffits			
Sectional/Rollup				Storefront			
Other				Glass Block			
				Other			
WINDOWS				ROOFING PRODUCTS			
Single/Dbf Hung				Asphalt Shingles			
Horizontal Slider				Non Struct Metal	METAL SALES 26ga manufacturing	Image II Roof	FL 11560 - R3
Casement				Roofing Tiles			
Fixed				Single Ply Roof			
Mullion				Underlayment	Boral Roofing / MOWER LIFE		FL 14317 - R9
Skylights				Other			
Other							
STRUCTURAL COMPONENTS				OTHER			
Wood Connectors							
Wood Anchors							
Truss Plates							
Insulation Forms							
Lintels							
Other							

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 Aug 27, 2018



Product Approval
USER: Public User

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

OFFICE OF THE SECRETARY

FL #	FL11560-R3								
Application Type	Revision								
Code Version	2017								
Application Status	Approved								
Comments									
Archived	<input type="checkbox"/>								
Product Manufacturer	Metal Sales Manufacturing Corporation								
Address/Phone/Email	545 South 3rd Street, Suite 200 Louisville, KY 40202 (502) 855-4300 dsterner@metalsales.us.com								
Authorized Signature	David Stermer dsterner@metalsales.us.com								
Technical Representative									
Address/Phone/Email									
Quality Assurance Representative									
Address/Phone/Email									
Category	Roofing								
Subcategory	Metal Roofing								
Compliance Method	Evaluation Report from a Florida Registered Architect or a Licensed Florida Professional Engineer <input type="checkbox"/> Evaluation Report - Hardcopy Received								
Florida Engineer or Architect Name who developed the Evaluation Report	Bala Sockalingam								
Florida License	PE-62240								
Quality Assurance Entity	Keystone Certifications, Inc.								
Quality Assurance Contract Expiration Date	12/27/2026								
Validated By	Yoosef Lavi, P.E. <input checked="" type="checkbox"/> Validation Checklist - Hardcopy Received								
Certificate of Independence	FL11560_R3_COI_CertificateIndependence.pdf								
Referenced Standard and Year (of Standard)	<table border="0"> <thead> <tr> <th>Standard</th> <th>Year</th> </tr> </thead> <tbody> <tr> <td>TAS 125</td> <td>2003</td> </tr> <tr> <td>UL 1897</td> <td>2012</td> </tr> <tr> <td>UL 580</td> <td>2006</td> </tr> </tbody> </table>	Standard	Year	TAS 125	2003	UL 1897	2012	UL 580	2006
Standard	Year								
TAS 125	2003								
UL 1897	2012								
UL 580	2006								
Equivalence of Product Standards Certified By									
Sections from the Code									
Product Approval Method	Method 1 Option D								
Date Submitted	09/09/2017								
Date Validated	09/14/2017								
Date Pending FBC Approval	09/15/2017								
Date Approved	12/12/2017								

Summary of Products

FL #	Model, Number or Name	Description
11560.1	Aluminum 5V-Crimp	24" wide, nom 0.032" thick aluminum through fastened roof panel over min 15/32" thick plywood deck or 7/16" thick OSB with fasteners through panel rib.
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-161.5 Other: Uplift load of 30 psf at fastener spacing of 36" o.c. and 161.5 psf at fastener spacing of 6" o.c.		Installation Instructions FL11560_R3_II_EvaluationReportC2181_1.pdf Verified By: Bala Sockalingam PE 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_1.pdf Created by Independent Third Party: Yes
11560.2	Aluminum Image II	16" wide, nom 0.032" thick aluminum concealed fastener roof panel over min 15/32" thick plywood deck or 7/16" thick OSB.
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-107.4 Other: Uplift load of 22.5 psf at fastener spacing of 24" o.c. and 107.4 psf at fastener spacing of 6" o.c.		Installation Instructions FL11560_R3_II_EvaluationReportC2181_2.pdf Verified By: Bala Sockalingam PE 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_2.pdf Created by Independent Third Party: Yes
11560.3	Aluminum Image II	16" wide, nom 0.032" thick fastener roof panel over min 19/32" thick plywood deck
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-195.0 Other: Uplift load of 22.5 psf at fastener spacing of 24" o.c., 104.7 psf at fastener spacing of 6" o.c. and 195.0 psf at fastener spacing of 6" o.c. with support strap.		Installation Instructions FL11560_R3_II_EvaluationReportC2181_3.pdf Verified By: Bala Sockalingam PE 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_3.pdf Created by Independent Third Party: Yes
11560.4	Image II	Min. 26 ga., max. 16" wide standing seam roof panel over min. 15/32" thick plywood deck
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-84.25 Other: Uplift load of 84.25 psf at fastener spacing of 24" o.c.		Installation Instructions FL11560_R3_II_EvaluationReportC2181_4.pdf Verified By: Bala Sockalingam PE 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_4.pdf Created by Independent Third Party: Yes
11560.5	Image II	Min. 26 ga., max. 16" wide standing seam roof panel over min. 19/32" thick plywood deck
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-139.1 Other: Uplift load of 84.3 psf @ fastener spacing of 24", 102.7 psf @ fastener spacing of 6" and 139.1 psf @ fastener spacing of 6" with 3/8" bead adhesive in sidelap		Installation Instructions FL11560_R3_II_EvaluationReportC2181_5.pdf Verified By: Bala Sockalingam PE 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_5.pdf Created by Independent Third Party: Yes
11560.6	Magna-Loc	Min. 24 ga., 16" wide standing seam roof panel over plywood deck
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-166.0 Other: Uplift load of 95.2 psf @ MC clip spacing of 30" o.c., 101.0 psf @ MC clip spacing of 15" o.c., 123.5 psf @ MC clip spacing of 8" o.c. and 166 psf @ MPW clip spacing of 12" o.c.		Installation Instructions FL11560_R3_II_EvaluationReportC2181_6.pdf Verified By: Bala Sockalingam PE 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_6.pdf Created by Independent Third Party: Yes
11560.7	Magna-Loc	Min. 24 ga., 16" wide standing seam roof panel over steel deck
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-168.5 Other: Uplift load of 59.7 psf @ MC clip spacing of 36" o.c. and 168.5 psf @ MPW clip spacing of 12" o.c.		Installation Instructions FL11560_R3_II_EvaluationReportC2181_7.pdf Verified By: Bala Sockalingam PE 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_7.pdf Created by Independent Third Party: Yes
11560.8	Stile	Min. 26 ga., 39.4" wide through fastened roof panel over min. 15/32" thick plywood deck
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-102.7 Other: Uplift load of 85.8 psf at fastener spacing of 24" o.c. and 102.7 psf at fastener spacing of 12" o.c.		Installation Instructions FL11560_R3_II_EvaluationReportC2181_8.pdf Verified By: Bala Sockalingam PE 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_8.pdf Created by Independent Third Party: Yes

11560.9	Stile	Min. 26 ga., 39.4" wide through fastened roof panel over min. 19/32" thick plywood deck
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-149.6 Other: Uplift load of 50.4 psf at fastener spacing of 36" o.c., 106.8 psf at fastener spacing of 24" o.c. and 149.6 psf at fastener spacing of 12" o.c.		Installation Instructions FL11560_R3_II_EvaluationReportC2181_9.pdf Verified By: Bala Sockalingam PE 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_9.pdf Created by Independent Third Party: Yes
11560.10	Vertical Seam	Min 24 ga., max. 16" wide standing seam roof panel over min. 15/32" thick plywood deck
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-114.3 Other: Uplift load of 30.0 psf at clip spacing of 48" o.c., 73.0 psf at clip spacing of 24" o.c. and 114.3 psf at clip spacing of 8" o.c.		Installation Instructions FL11560_R3_II_EvaluationReportC2181_10.pdf Verified By: Bala Sockalingam PE 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_10.pdf Created by Independent Third Party: Yes
11560.11	Vertical Seam	Min 24 ga., max. 18" wide standing seam roof panel over min. 15/32" thick plywood deck
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-105 Other: Uplift load of 30.0 psf at clip spacing of 48" o.c., 82.5 psf at clip spacing of 12" o.c. and 105.0 psf at clip spacing of 12" o.c. with sidelap adhesive.		Installation Instructions FL11560_R3_II_EvaluationReportC2181_11.pdf Verified By: Bala Sockalingam PE 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_11.pdf Created by Independent Third Party: Yes
11560.12	Vertical Seam	Min. 26 ga., 16" wide standing seam roof panel over min. 15/32" thick plywood deck
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-81.3 Other: Uplift load of 30.0 psf at clip spacing of 48" o.c. and 81.3 psf at clip spacing of 6" o.c.		Installation Instructions FL11560_R3_II_EvaluationReportC2181_12.pdf Verified By: Bala Sockalingam PE 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_12.pdf Created by Independent Third Party: Yes
11560.13	Vertical Seam	Min 24 ga., max. 16" wide standing seam roof panel over min. 15/32" thick plywood deck
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-114.25 Other: Uplift load of 22.5 psf at clip spacing of 48" o.c. and 93.5 psf at clip spacing of 12" o.c.		Installation Instructions FL11560_R3_II_EvaluationReportC2181_13.pdf Verified By: Bala Sockalingam P.E. 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_13.pdf Created by Independent Third Party: Yes
11560.14	Vertical Seam	Min 24 ga., max. 18" wide standing seam roof panel over min. 15/32" thick plywood deck
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-114.25 Other: Uplift load of 22.5 psf at clip spacing of 48" o.c. and 86.0 psf at clip spacing of 12" o.c.		Installation Instructions FL11560_R3_II_EvaluationReportC2181_14.pdf Verified By: Bala Sockalingam P.E. 62240 Created by Independent Third Party: Yes Evaluation Reports FL11560_R3_AE_EvaluationReportC2181_14.pdf Created by Independent Third Party: Yes

[Back](#) [Next](#)

Contact Us :: [2601 Blair Stone Road, Tallahassee FL 32399](#) Phone: 850-487-1824

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**EVALUATION REPORT OF
METAL SALES MANUFACTURING CORPORATION
'NOM 0.032" THICK ALUMINUM 5V-CRIMP PANEL'**

**FLORIDA BUILDING CODE 6TH EDITION (2017)
FLORIDA PRODUCT APPROVAL
FL 11560.1-R3
ROOFING
METAL ROOFING**

**Prepared For:
Metal Sales Manufacturing Corporation
545 South 3rd Street, Suite 200
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Telephone: (502) 855-4300
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**Prepared By:
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**This report consists of
Evaluation Report (3 Pages including cover)
Installation Details (1 Page)
Load Span Table (1 Page)**

**Report No. C2181-1
Date: 9.8.2017**



Manufacturer: Metal Sales Manufacturing Corporation

Product Name: Aluminum 5V-Crimp

Panel Description: 24" wide coverage with (5) 1/2" high ribs

Materials: Nom. 0.032" thick 3004-H14 or 3105-H24 Alloy (ASTM B209).

Deck Description: Min. 7/16" thick OSB, min. 15/32" thick Plywood or min. 3/4" thick wood plank (min SG of 0.42) for new and existing constructions. Designed by others and installed as per FBC 2017.

**Deck Attachment:
(Minimum)** 8d x 2.5" long ring shank nails or #8 x 2" long wood screws @ 6" o.c. in the plywood field and edges. Designed as per FBC 2017.

New Underlayment: Minimum underlayment as per FBC 2017 Section 1507.4.5.1. Required for new construction and optional for reroofing construction.

**Existing Underlayment:
(Optional)** One layer of asphalt shingles over one layer of #30 felt. For reroofing construction only.

Slope: 1/2:12 or greater in accordance with FBC 2017 Section 1507.4.2. Requires applied lap sealant for roof slopes less than 3:12.

**Design Uplift Pressure:
(Factor of Safety = 2)** 30 psf @ fastener spacing of 36" o.c.
161.5 psf @ fastener spacing of 6" o.c.

**Fastener Pattern:
Type:** #10-14 hex head wood screw with sealed washer. Fastener shall be of sufficient length to penetrate through the deck a minimum of 3/8".

At panel ends @ 6" o.c. across panel width

At intermediate @ max 12.5" o.c. across panel width

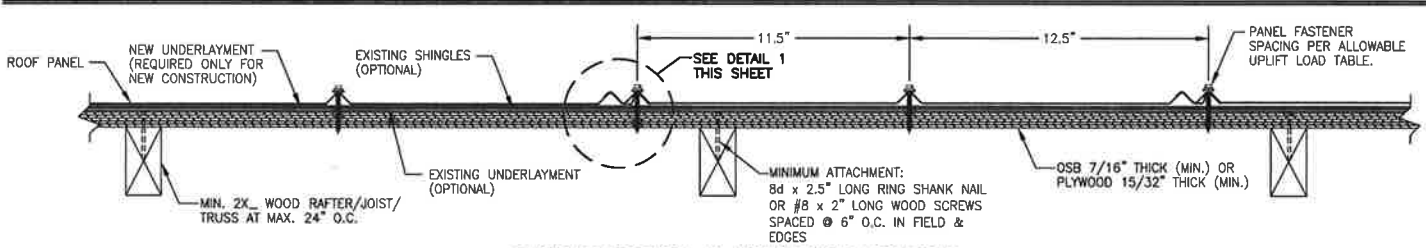
Test Standards: Roof assembly tested in accordance with TAS 125-03 'Standard Requirements for Metal Roofing Systems'.

Code Compliance: The product described herein has demonstrated compliance with FBC 2017 Section 1507.4.

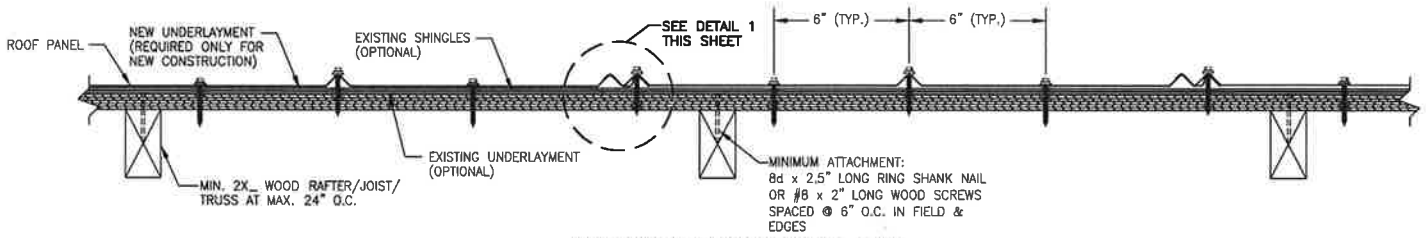
Product Limitations: Design wind loads shall be determined for each project in accordance with FBC 2017 Section 1609 or ASCE 7-10 using allowable stress design. The maximum fastener spacing listed herein shall not be exceeded. The design pressure for reduced fastener spacing may be computed using rational analysis prepared by a Florida Professional Engineer or based on Metal Sales load span table. This evaluation report is not applicable in High Velocity Hurricane Zone. Fire

classification is not within scope of this Evaluation Report. Refer to FBC 2017 Section 1505 and current approved roofing materials directory or ASTM E108/UL790 report from an accredited laboratory for fire ratings of this product.

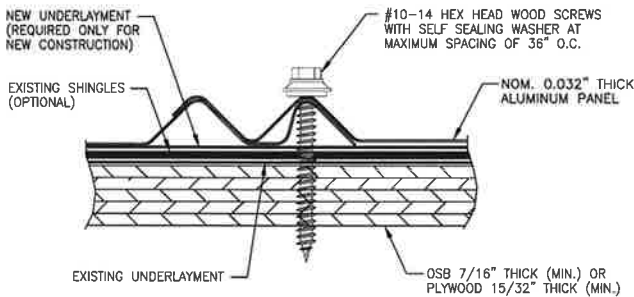
Supporting Documents: TAS 125 Test Reports
Farabaugh Engineering and Testing Inc.
Project No. T198-11, Reporting Date 5/19/11



FASTENER PATTERN AT INTERMEDIATE LOCATIONS



**FASTENER PATTERN AT PANEL ENDS
TYPICAL PANEL INSTALLATION X-SECTION**



DETAIL 1

GENERAL NOTES:

1. ARCHITECTURAL ROOF PANEL HAS BEEN DESIGNED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE (FBC).
2. ROOF PANELS ARE SHALL BE NOM. 0.032" THICK ALUMINUM. COVERING WIDTH OF PANEL = 24".
3. THE ROOF PANELS SHALL BE INSTALLED OVER SHEATHING & STRUCTURE AS SPECIFIED ON THIS DRAWING.
4. REQUIRED DESIGN WIND LOADS SHALL BE DETERMINED FOR EACH PROJECT. THIS PANEL SYSTEM MAY NOT BE INSTALLED WHEN THE REQUIRED DESIGN WIND LOADS ARE GREATER THAN THE ALLOWABLE WIND LOADS SPECIFIED ON THIS DRAWING.
5. ALL FASTENERS MUST BE IN ACCORDANCE WITH THIS DRAWING & THE FLORIDA BUILDING CODE. IF A DIFFERENCE OCCURS BETWEEN THE MINIMUM REQUIREMENTS OF THIS DRAWING & THE CODE, THE CODE SHALL CONTROL.
6. RAFTERS/JOISTS/TRUSSES MUST BE DESIGNED TO WITHSTAND WIND LOADS AS REQUIRED FOR EACH APPLICATION AND ARE THE RESPONSIBILITY OF OTHERS.

DESIGNED BY	CHECKED BY
DATE	DATE
REVISED DESCRIPTION	
NO.	
ALUMINUM SV-CRIMP PANEL MANUFACTURER: BALA SOCCALINGAM, PH.D., P.E. METAL SALES MANUFACTURING CORP. 545 SOUTH 3RD ST., SUITE 200 LOUISVILLE, KY 40202 502-855-4300	
CONSULTANTS	MANUFACTURER
1216 N LANSING AVE. SUITE C TULSA, OK 74108	1216 N LANSING AVE. SUITE C TULSA, OK 74108
PHONE: 918-492-9962 Fax: 918-492-1543	
DRAWING NO.	REV.
2181-1	1
PAGE NO.	
1	of 1

METAL SALES MANUFACTURING CORPORATION
Aluminum 5V-Crimp Uplift Loads
(Nom. 0.032" thick)

Description	Fastener Spacing along Panel Length (in)	Allowable Uplift Load (psf)
<p>Coverage width: 24"</p> <p>Panel Fastener: #10-14 hex head screws with sealed washer</p> <p>Panel fasteners spaced at max. 12.5" o.c. across panel width through ribs.</p>	6	161.5
	9	120.0
	12	90.0
	15	72.0
	18	60.0
	21	51.4
	24	45.0
	27	40.0
	30	36.0
	33	32.7
	36	30.0

Notes:

1. The bold numbers indicate design loads calculated from test data with safety factor of 2.
2. Panels must be installed as per Evaluation Report FL 11560.1 and Metal Sales current installation procedure.
3. Three or more spans condition.



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Bala Sockalingam, Ph.D., P.E.
FL 62240



Product Approval
USER: Public User

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

OFFICE OF THE SECRETARY

FL #	FL14317-R9								
Application Type	Revision								
Code Version	2017								
Application Status	Approved								
Comments									
Archived	<input type="checkbox"/>								
Product Manufacturer	Boral Roofing / MonierLifetile								
Address/Phone/Email	7575 Irvine Center Drive Suite 100 Irvine, CA 92618 (602) 269-2288 Ext 8320 thomas.jemmett@boral.com								
Authorized Signature	Thomas Jemmett thomas.jemmett@boral.com								
Technical Representative	Adrian Cooper								
Address/Phone/Email	135 NW 20th Street Boca Raton, FL 33431 (954) 520-5461 acooper@minierlifetile.com								
Quality Assurance Representative									
Address/Phone/Email									
Category	Roofing								
Subcategory	Underlayments								
Compliance Method	Evaluation Report from a Florida Registered Architect or a Licensed Florida Professional Engineer <input type="checkbox"/> Evaluation Report - Hardcopy Received								
Florida Engineer or Architect Name who developed the Evaluation Report	Robert J. M. Nieminen								
Florida License	PE-59166								
Quality Assurance Entity	UL LLC								
Quality Assurance Contract Expiration Date	08/21/2020								
Validated By	John W. Knezevich, PE <input checked="" type="checkbox"/> Validation Checklist - Hardcopy Received								
Certificate of Independence	FL14317 R9 COI 2018 01 COI NIEMINEN.pdf								
Referenced Standard and Year (of Standard)	<table border="0"> <thead> <tr> <th>Standard</th> <th>Year</th> </tr> </thead> <tbody> <tr> <td>ASTM D1970</td> <td>2015</td> </tr> <tr> <td>FRSA/TRI (April 2012) 04-12</td> <td>2012</td> </tr> <tr> <td>UL 1897</td> <td>2012</td> </tr> </tbody> </table>	Standard	Year	ASTM D1970	2015	FRSA/TRI (April 2012) 04-12	2012	UL 1897	2012
Standard	Year								
ASTM D1970	2015								
FRSA/TRI (April 2012) 04-12	2012								
UL 1897	2012								
Equivalence of Product Standards Certified By									
Sections from the Code									
Product Approval Method	Method 1 Option D								
Date Submitted	05/29/2018								
Date Validated	06/05/2018								
Date Pending FBC Approval	06/11/2018								

Summary of Products

FL #	Model, Number or Name	Description
14317.1	Boral Roof Underlayments	Roof underlayments for use in prepared roof assemblies
Limits of Use Approved for use in HVHZ: No Approved for use outside HVHZ: Yes Impact Resistant: N/A Design Pressure: +N/A/-210 Other: 1.) The design pressure in this application pertains to a particular underlayment system for use under foam-on tile systems. Refer to ER Section 5.6.4. 2.) Refer to ER Section 5 for Limits of Use.		Installation Instructions FL14317 R9 II 2018 05 FINAL ER BORAL Underlayments FL14317-R9.pdf Verified By: Robert J. M. Nieminen PE - 59166 Created by Independent Third Party: Yes Evaluation Reports FL14317 R9 AE 2018 05 FINAL ER BORAL Underlayments FL14317-R9.pdf Created by Independent Third Party: Yes

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Product Approval Accepts:



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NEOREcta.

Certificate of Authorization #32455
353 Christian Street, Unit #13
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(203) 262-9245

ENGINEER

EVALUATE

TEST

CONSULT

CERTIFY

EVALUATION REPORT

Boral Roofing

7575 Irvine Center Drive, Suite 100
Irvine, CA. 92618
(602) 269-2288

Evaluation Report M35710.12.10-R10

FL14317-R9

Date of Issuance: 12/21/2010

Revision 10: 05/29/2018

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 **6th Edition (2017) Florida Building Code** sections noted herein.

DESCRIPTION: Boral Roof Underlayments

LABELING: Labeling shall be in accordance with the requirements of 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. of any changes to the product(s), the Quality Assurance or the production facility location(s). NEMO|etc. 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 "NEMO|etc. Evaluated" may be displayed in advertising literature. If any portion of the Evaluation Report is displayed, then it shall be done in its entirety.

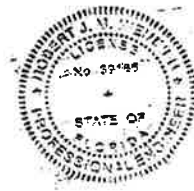
INSPECTION: Upon request, a copy of this entire Evaluation Report shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This Evaluation Report consists of pages 1 through 8.

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 05/29/2018. This does not serve as an electronically signed document.

CERTIFICATION OF INDEPENDENCE:

1. NEMO ETC, LLC 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. NEMO ETC, LLC 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 NEMO|etc. 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: Boral Roof Underlayments, as marketed by Boral Roofing, have demonstrated compliance with the following sections of the 6th Edition (2017) 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	UL 1897	2012
1507.1.1, T1507.1.1, 1507.2.9.2	Physical Properties	ASTM D1970	2015
1507.3.3	Physical Properties	FRSA/TRI April 2012 (04-12)	2012

3. REFERENCES:

Entity	Examination	Reference	Date
ERD (TST 6049)	Physical Properties	M36790.07.11	09/30/2011
ERD (TST 6049)	Physical Properties	B40380.08.12	08/28/2012
ERD (TST 6049)	Tensile Adhesion / LTA	C41420.09.12-2	09/11/2012
ERD (TST 6049)	Adhesion	B41940.09.12	09/13/2012
ERD (TST 6049)	Tensile Adhesion / LTA	B47390.07.14-1	07/31/2014
ERD (TST 6049)	Tensile Adhesion / LTA	B47390.09.14	09/04/2014
OC (PDM1838)	Physical Properties	Equivalency statement	11/02/2017
PRI (TST 5878)	ASTM D1970	NEI-031-02-02:REV	10/27/2010
PRI (TST 5878)	ASTM D1970	NEI-029-02-01:REV	12/03/2010
PRI (TST 5878)	Tensile Adhesion / LTA	NEI-046-02-01REV	12/17/2010
PRI (TST 5878)	FRSA/TRI April 2012	NEI-076-02-01	02/14/2011
PRI (TST 5878)	ASTM D1970	NEI-034-02-02	01/29/2013
PRI (TST 5878)	Wind Uplift	BORR-001-02-01	03/17/2015
PRI (TST 5878)	Wind Uplift	BORR-005-02-01	06/24/2015
PRI (TST 5878)	Tensile Adhesion / LTA	DAPF-002-02-01	03/08/2018
UL, LLC. (QUA 9625)	Quality Assurance	Service Confirmation	Exp. 08/21/2020

4. PRODUCT DESCRIPTION:

- 4.1 **Boral® TileSeal 50^{HT}** is a nominal 50-mil thick, polyester-surfaced, self-adhering SBS modified bitumen roof underlayment; meets ASTM D1970.
- 4.2 **Boral® TileSeal^{HT}** is a nominal 60-mil thick, polyester-surfaced, self-adhering SBS modified bitumen roof underlayment; meets ASTM D1970 and FRSA/TRI 04-12.
- 4.3 **Boral® MetalSeal^{HT}** is a nominal 60-mil thick, polyester-surfaced, self-adhering SBS modified bitumen roof underlayment; meets ASTM D1970 and FRSA/TRI 04-12.
- 4.4 **GatorSeal®** is a nominal 55-mil thick, granular-surfaced, fiberglass reinforced, self-adhering SBS modified bitumen roof underlayment; meets ASTM D1970.
- 4.5 **Citadel® Plus** is a nominal 48-mil thick, fabric-surfaced, fiberglass reinforced, self-adhering SBS modified bitumen roofing underlayment for use as a base-layer in two-ply underlayment systems; meets ASTM D1970.

5. LIMITATIONS:

- 5.1 This is a building code evaluation. Neither NEMO ETC, LLC 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 FBC HVHZ jurisdictions.
- 5.3 Fire Classification is not part of this Laboratory Report; refer to current Approved Roofing Materials Directory for fire ratings of this product.
- 5.4 **Boral 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 pertains to use of each listed underlayment by-itself beneath the stated roof covers. Refer to the installation instructions and Table 2 for two-ply underlayment options.

TABLE 1: ROOF COVER OPTIONS						
Underlayment	Asphalt Shingles	Nail-On Tile	Adhesive-set Tile	Metal	Wood Shakes & Shingles	Slate
Boral TileSeal 50 ^{HT}	Yes	No	No	Yes	Yes	Yes
Boral TileSeal ^{HT}	Yes	Yes	Yes (See 5.5.1)	Yes	Yes	Yes
Boral MetalSeal ^{HT}	Yes	Yes	Yes (See 5.5.1)	Yes	Yes	Yes
GatorSeal	Yes	No	No	No	Yes	Yes

5.5.1 "Adhesive-set Tile" is limited to use of following Approved tile adhesives / underlayment combinations.

TABLE 1A: ALLOWABLE TILE ADHESIVE / UNDERLAYMENT COMBINATIONS ¹		
Adhesive	Florida Product Approval	Underlayments
DAP Foam Touch 'n Seal StormBond Roof Tile Adhesive	FL14506	Boral TileSeal ^{HT} or Boral MetalSeal ^{HT}
DAP Foam Touch 'n Seal StormBond 2 Two-Component Polyurethane Roof Tile Adhesive	FL21374	Boral TileSeal ^{HT} or Boral MetalSeal ^{HT}
Dow TILE BOND™ Roof Tile Adhesive	FL22525	Boral TileSeal ^{HT} or Boral MetalSeal ^{HT}
ICP Adhesives Polyset® AH-160	FL6332	Boral TileSeal ^{HT} or Boral MetalSeal ^{HT}
ICP Adhesives Polyset® RTA-1	FL6276	Boral TileSeal ^{HT} or Boral MetalSeal ^{HT}

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:**

Citadel Plus, Boral TileSeal 50^{HT}, Boral TileSeal^{HT}, Boral MetalSeal^{HT} or GatorSeal:

- Plywood (unprimed or primed with ASTM D41 primer).

Boral TileSeal^{HT} or Boral MetalSeal^{HT}:

- OSB primed with ASTM D41 primer.

*Note: Refer to **Section 5.6.4** for uplift limitations associated with direct-deck underlayment installations where the overlying roof cover is adhesive-set tile roofing*

5.6.2 **Bond to Base Layer Underlayment:**

Citadel Plus, Boral TileSeal 50^{HT}, Boral TileSeal^{HT}, Boral MetalSeal^{HT} or GatorSeal:

- ASTM D226, Type II felt; Citadel Plus.

For installations under mechanically attached prepared roof coverings, base layer shall be attached per minimum codified requirements. For installations under adhesive-set 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 1504.3.1**.

5.6.3 **Bond to Other Substrate Types:**

Citadel Plus, Boral TileSeal 50^{HT}, Boral TileSeal^{HT}, Boral MetalSeal^{HT} or GatorSeal:

- ASTM D41 primed metal (e.g., flashing metal, valley metal, etc.).

Boral TileSeal^{HT}:

- Huber Zip Deck (unprimed or primed with ASTM D41 primer); Dens Deck Prime.

Note: For installation under mechanically attached prepared roof coverings, insulation shall be attached per minimum requirements of the prepared roof covering manufacturer's Product Approval.

5.6.4 **Wind Resistance for Underlayment Systems in Adhesive-set Tile Applications:** **FRSA/TRI April 2012 (04-12)** does not address wind uplift resistance of all underlayment systems beneath adhesive-set 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 adhesive-set 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

#1 **Maximum Design Pressure = -120.0 psf:**

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

Primer: ASTM D41 to the plywood deck

Base Ply: Citadel Plus, self-adhered

Cap Sheet: Boral TileSeal^{HT} or Boral MetalSeal^{HT}, self-adhered, and back-nailed within the seldedge-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.

#2 **Maximum Design Pressure = -142.5 psf:**

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

Base Ply: None

Cap Sheet: Boral TileSeal^{HT} or Boral MetalSeal^{HT}, self-adhered and back-nailed within the seldedge-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.

#3 **Maximum Design Pressure = -202.5 psf:**

- Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
- Primer: Tropical Roofing Products #410 Quick Dry Primer or other ASTM D41 primer to the plywood deck
- Base Ply: None
- Cap Sheet: Boral TileSeal^{HT} or Boral MetalSeal^{HT}, 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.

#4 **Maximum Design Pressure = -210.0 psf:**

- Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
- Primer: KARNAK #89 Sta-Tak Primer to the plywood deck
- Base Ply: None
- Cap Sheet: Boral TileSeal^{HT} or Boral MetalSeal^{HT}, 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 **Maximum Design Pressure = -120.0 psf:**

- Deck: Min. 2,500 psi structural concrete to meet project requirements to satisfaction of Authority Having Jurisdiction.
- Primer: ASTM D41 to the concrete deck
- Base Ply: (Optional) Citadel Plus, self-adhered
- Cap Sheet: Boral TileSeal^{HT} or Boral MetalSeal^{HT}, self-adhered

5.6.4.1 Note: For adhesive-set tile systems, if there is a base ply or mid-ply of Citadel Plus in the system, the project design pressure requirements may not exceed -120 psf.

5.7 **Exposure Limitations:**

GatorSeal shall not be left exposed for longer than **30-days** after installation, prior to placement of final roof cover.

Boral TileSeal 50^{HT}, **Boral TileSeal^{HT}** or **Boral MetalSeal^{HT}** shall not be left exposed for longer than **180-days** after installation, prior to placement of final roof cover.

Citadel Plus, for use as a base-layer in a two-ply underlayment system, shall not be left exposed for longer than **180-days** after installation, prior to placement of subsequent underlayment layer.

5.8 **Tile Slippage Limitations [FRSA/TRI April 2012 (04-12)]:**

When loading roof tiles on the underlayment in direct-deck tile assemblies, the maximum roof slope shall be as follows. These slope limitations can only be exceeded by using battens during loading of the roof tiles.

TABLE 2: TILE SLIPPAGE LIMITATIONS FOR DIRECT-DECK TILE INSTALLATIONS			
Underlayment	Tile Profile	Staging Method	Maximum Slope
Boral TileSeal ^{HT} or Boral MetalSeal ^{HT}	Flat	Max. 10-tile stack	6:12
	Lugged	Max. 10-tile stack	6:12

6. INSTALLATION:

- 6.1 **Boral Roof Underlayments** shall be installed in accordance with **Boral Roofing** published installation instructions 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 Install self-adhering underlayment when ambient and surface temperatures are minimum 40°F and rising.

6.4 **Citadel Plus:**

6.4.1 Citadel Plus is limited to use as a base or mid-layer in multi-ply underlayment systems beneath Boral TileSeal 50^{HT}, Boral TileSeal^{HT} or GatorSeal.

6.4.2 Slope limitations are those associated with the top-layer underlayment.

6.4.3 Direct to Deck:

Cut the membrane into manageable lengths, typically 10 to 12 ft. Align the membrane parallel to the roof edge, extending over by ¼-inch. Fold the membrane away from the edge onto itself. Remove the release sheet. Place the membrane with the exposed rubberized asphalt onto the deck, pressing firmly into place. Roll into place with a weighted roller.

Fasten the top edge of the sheet to the deck with corrosion resistant roofing nails, nails & tin-tags or 1-inch diameter plastic or steel cap nails spaced maximum 12-inch o.c. Overlap successive courses the entire width of the black-selvedge area, minimum 2 inches (horizontal lap) and minimum 6" end (vertical) laps.

Install final underlayment layer atop Citadel Plus per 'direct-to-deck' instructions for Boral TileSeal 50^{HT}, Boral TileSeal^{HT}, Boral MetalSeal^{HT} or GatorSeal.

6.4.4 To Base Sheet:

Install base sheet of ASTM D226, Type II felt in accordance with Code requirements or install base ply of Citadel Plus in accordance with Boral Roofing published installation instructions and Section 6.4.3 and when used as part of a multi-ply system.

Install optional Citadel Plus as a mid-ply in accordance with Boral Roofing published installation instructions and Section 6.4.3.

Install final underlayment layer atop Citadel Plus per 'direct-to-deck' instructions for Boral TileSeal 50^{HT}, Boral TileSeal^{HT} or GatorSeal.

Note: For adhesive-set tile systems, if there is a base ply or mid-ply of Citadel Plus in the system, the project design pressure requirements may not exceed -120 psf.

6.5 **Boral TileSeal 50^{HT}:**

6.5.1 Shall be installed in compliance with the requirements for ASTM D1970 underlayment in **FBC Table 1507.1.1** for the type of prepared roof covering to be installed.

6.5.2 Do not use Boral TileSeal 50^{HT} on roof pitches less than 2:12.

6.5.3 Non-Tile Applications, Direct to Deck:

Cut the membrane into manageable lengths, typically 10 to 12 ft. Align the membrane parallel to the roof edge, extending over by ¼-inch. Fold the membrane away from the edge onto itself. Remove the release sheet. Place the membrane with the exposed rubberized asphalt onto the deck, pressing firmly into place. Roll into place with a weighted roller.

Fasten the black selvedge edge to the deck with corrosion resistant roofing nails, nails & tin-tags or 1-inch diameter plastic or steel cap nails spaced maximum 24-inch o.c. for slopes below 7:12 and maximum 12-inch o.c. for slopes 7:12 and greater. Overlap successive courses the entire width of the black-selvedge area, minimum 3-inch.

Seal under end (vertical) laps using approved mastic, or use Joined and Folded Seam or Inverted Sheet Seam method detailed in Boral Roofing published installation instructions.

6.5.4 Non-Tile Applications, to Base Sheet:

Install ASTM D226, Type II felt in accordance with Code requirements or install Citadel Plus in accordance with Boral Roofing published installation instructions and Section 6.4.

Install Boral TileSeal 50^{HT} in accordance over ASTM D226, Type II felt or Citadel Plus with Boral Roofing published installation instructions and Section 6.5.3, except end (vertical) laps, described below.

Apply SBS Mastic under all end (vertical) laps or any other laps where the self-adhering bituminous underside is in contact with the fabric top surface, rolling the interface into place with a weighted roller.

6.6 **GatorSeal:**

6.6.1 Shall be installed in compliance with the requirements for ASTM D1970 underlayment in **FBC Table 1507.1.1** for the type of prepared roof covering to be installed.

6.6.2 Do not use GatorSeal on roof pitches less than 2:12.

6.6.3 Non-Tile applications, Direct to Deck:

Cut the membrane into manageable lengths, typically 10 to 12 ft. Align the membrane parallel to the roof edge, extending over by ¼-inch. Fold the membrane away from the edge onto itself. Remove the release sheet. Place the membrane with the exposed rubberized asphalt onto the deck, pressing firmly into place. Roll into place with a weighted roller.

Fasten the black selvedge edge to the deck with corrosion resistant roofing nails, nails & tin-tags or 1-inch diameter plastic or steel cap nails spaced 24-inch o.c. for slopes below 7:12 and 12-inch o.c. for slopes 7:12 and greater. Overlap successive courses the entire width of the black-selvedge area, minimum 3-inch.

Seal end (vertical) laps using SBS Mastic under all side (vertical) laps or any other laps where the self-adhering bituminous underside is in contact with the granular or mineral top surface, rolling the interface into place with a weighted roller, or using the Inverted Sheet Seam detailed in Boral Roofing published installation instructions.

6.6.4 Non-Tile Applications, to Base Sheet:

Install ASTM D226, Type II felt in accordance with Code requirements or install Citadel Plus in accordance with Boral Roofing published installation instructions and Section 6.4.

Install GatorSeal over ASTM D226, Type II felt or Citadel Plus in accordance with Boral Roofing published installation instructions and Section 6.6.3 except end (vertical) laps, described below.

Apply SBS Mastic under all side (vertical) laps or any other laps where the self-adhering bituminous underside is in contact with the granular top surface, rolling the interface into place with a weighted roller.

6.7 **Boral TileSeal^{HT} or Boral MetalSeal^{HT}:**

6.7.1 Shall be installed in compliance with the requirements for ASTM D1970 underlayment in **FBC Table 1507.1.1** for the type of prepared roof covering to be installed.

6.7.2 Do not use Boral TileSeal^{HT} or Boral MetalSeal^{HT} on roof pitches less than 2:12.

6.7.3 Non-Tile Applications, Direct to Deck:

For OSB substrate, prime with ASTM D41 primer and allow to dry prior to installation. Cut the membrane into manageable lengths, typically 10 to 12 ft. Align the membrane parallel to the roof edge, extending over by ¼-inch. Fold the membrane away from the edge onto itself. Remove the release sheet. Place the membrane with the exposed rubberized asphalt onto the deck, pressing firmly into place. Roll into place with a weighted roller.

Fasten the black selvedge edge to the deck with roofing nails, nails & tin-tags or 1-inch diameter plastic or steel cap nails spaced maximum 12-inch o.c. Overlap successive courses the entire width of the black-selvedge area, minimum 3-inch.

Seal under all end (vertical) laps using approved mastic or use Inverted Sheet Seam method detailed in Boral Roofing published installation instructions.



6.7.4 Non-Tile Applications, to Base Sheet:

Install ASTM D226, Type II felt in accordance with Code requirements or install Citadel Plus in accordance with Boral Roofing published installation instructions and Section 6.4.

Install Boral TileSeal^{HT} or Boral MetalSeal^{HT} over ASTM D226, Type II felt or Citadel Plus in accordance with Boral Roofing published installation instructions and Section 6.7.3, except end (vertical) laps, described below.

Apply SBS Mastic under all end (vertical) laps or any other laps where the self-adhering bituminous underside is in contact with the fabric top surface, rolling the interface into place with a weighted roller.

6.7.5 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.

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.

Note: For adhesive-set tile systems, if there is a base ply or mid-ply of Citadel Plus in the system, the project design pressure requirements may not exceed -120 psf.

Refer to **Section 5.8** for tile staging limitations. Battens must be used for all tile installations atop Boral TileSeal^{HT} or Boral MetalSeal^{HT} with roof pitches of 2½ to less than 3:12. Boral Roofing's Elevated Batten System or counter battens are required.

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:

Brentwood, NH

9. QUALITY ASSURANCE ENTITY:

UL, LLC. – QUA9625; (631) 546-2458; Kanchi.Agrawala-Dokania@ul.com

- END OF EVALUATION REPORT -