

Force Engineering & Testing

19530 Ramblewood Drive
Humble, Texas 77338
Phone: (281) 540-6603, Fax: (281) 540-9966
Website: forceengineeringtesting.com

Product Evaluation Report
SENTRIGARD METAL ROOFING SYSTEMS ASSOCIATION, INC.,
an NB HANDY COMPANY

Sentrigard ML 150H, 24 Ga. 16" Wide Roof Panel over Plywood

Florida Product Approval # 9860.5 R6

Florida Building Code 2020
Per Rule 61G20-3
Method: 1 –D

Category: Roofing
Subcategory: Metal Roofing
Compliance Method: 61G20-3.005(1)(d)
HVHZ

Product Manufacturer:

Sentrigard Metal Roofing Systems Association, Inc.,
an NB Handy Company
65 10th Street
Lynchburg, Virginia 24502

Engineer Evaluator:

Johnathan Green, P.E. #88223
Florida Evaluation ANE ID: 12901

Validator:

Brian Jaks P.E. #70159

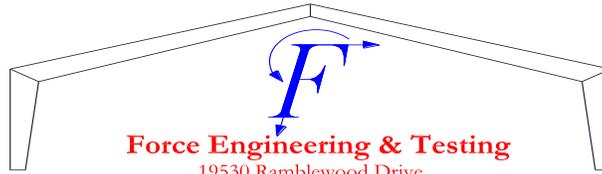
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Compliance Statement: The product as described in this report has demonstrated compliance with the Florida Building Code 2020, Sections 1504.3.2, 1518.9, 1523.6.5.2.4.

Product Description: Sentrigard ML 150H, 1-1/2" Mechanical Lock Standing Seam Roof Panel, 24 Ga. Steel, 16" Wide, Roof Panel restrained with steel slider clips into APA Plywood decking. Non-structural Application.

Panel Material/Standards: Material: 24 Ga. Steel, ASTM A792 unpainted or painted with Valspar Fluropon or ASTM A653 G90 conforming to Florida Building Code 2020 Section 1507.4.3.
 Yield Strength: Min. 50.0 ksi
 Corrosion Resistance: Panel Material shall comply with Florida Building Code 2020, Section 1507.4.3

Panel Dimension(s):
 Thickness: 0.024"
 Width: 16" max coverage
 Rib Height: 1-1/2"
 Panel Seam: 180° Seam, Double Lock w/ mechanical seamer

Roof Panel Clips:
 Product Name: 1500SC, 1-1/2" Sliding Clip Assembly
 Type: Two Piece Slider
 Top: 22 Ga. Galvanized Steel
 Base: 16 Ga. Galvanized Steel
 Corrosion Resistance: Per Florida Building Code 2020 Section 1506.7

Roof Clip Fastener: (2) #12-11 x 1" Pancake Type A, 1/4" minimum penetration through plywood
 Corrosion Resistance: Per Florida Building Code 2020, Section 1517.6.

Substrate Description:
 1) For HVHZ construction, use 19/32" or greater APA Rated plywood or wood plank. In reroofing applications where the deck is less than 19/32" thick (min. 15/32") the attachment of the decking in no case shall be less than 8D annual ring shank nails at 6" O.C. Design of plywood and plywood supports are outside the scope of this evaluation. Substrate must be designed in accordance w/ Florida Building Code 2020.

2) For Non-HVHZ applications, use min. 15/32" thick, APA Rated plywood over supports at maximum 24" O.C. Design of plywood and plywood supports are outside the scope of this evaluation. Substrate must be designed in accordance w/ Florida Building Code 2020.

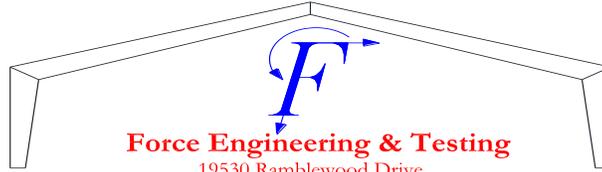


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Allowable Design Uplift Pressures:

Table "A"

Maximum Total Uplift Design Pressure:	59.75 psf	123.5 psf
Clip Spacing:	24" O.C.	6" O.C.
# Fasteners per Clip:	2	2

*Design Pressure includes a Safety Factor = 2.0.

Code Compliance:

The product described herein has demonstrated compliance with The Florida Building Code 2020, Section 1504.3.2, 1518.9, 1523.6.5.2.4.

Evaluation Report Scope:

The product evaluation is limited to compliance with the structural wind load requirements of the Florida Building Code 2020, as relates to Rule 61G20-3.

Performance Standards:

The product described herein has demonstrated compliance with:

- TAS 125-03
- UL 580-06 - Test for Uplift Resistance of Roof Assemblies
- UL 1897-2012 - Uplift Test for Roof Covering Systems
- TAS 100-95 - Test Procedure for Wind and Wind Driven Rain Resistance of Discontinuous Roof Systems
- TAS 110-00 - Accel. Weathering ASTM G 155 / Salt Spray ASTM B 117

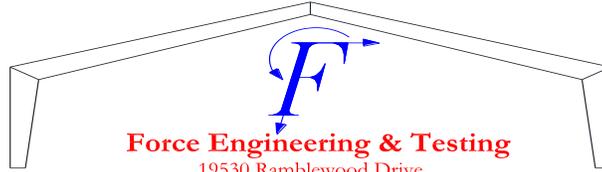
Reference Data:

1. TAS 125-03: UL 580-94 / 1897-98 Uplift Test
Force Engineering & Testing, Inc. (FBC Organization # TST-5328)
Report No. 72-0313T-06*
2. TAS 100-95
Farabaugh Engineering & Testing, Inc. (FBC Organization # TST-1654)
Report No. T157-07*
3. TAS 110-00: Valspar Fluropon coated metal panel testing
A) ASTM G 155
B) ASTM B 117
4. Miami-Dade County
Dept. of Regulatory and Economic Resources Board and Code Admin. Div.
Notice of Acceptance (NOA) 19-0722.03; Expires 08/25/2025
Sentrigard Metal Roofing Systems Association, Inc.
5. Certificate of Independence
By Johnathan Green, P.E. #88223



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Test Standard Equivalency:

1. The UL 580-94 test standard is equivalent to the UL 580-06 test standard.
2. The UL 1897-98 test standard is equivalent to the UL 1897-2012 test standard.

Quality Assurance Entity:

The Report Holder has demonstrated compliance with Florida Building Code and Rule 61G20-3.005 (3) for manufacturing locations audited by an approved quality assurance entity (Keystone Certifications, Inc – FBC Org ID QUA 1824). A listing of manufacturers authorized by the Report Holder to employ the Florida Product Approvals qualified by this report can be found at <http://www.keystonecerts.com/ga-assoc/sentrigard> or by scanning the following QR Code:



Minimum Slope Range:

2:12. Minimum Slope shall comply with Florida Building Code 2020, including Sections 1515.2.2 and in accordance with Manufacturers recommendations.

Installation:

Install per manufacturer's recommended details and RAS 133.

Underlayment:

Per Manufacturer's installation guidelines per Florida Building Code 2020 Section 1518.2, 1518.3, 1518.4.

Fire Barrier:

Any approved fire barrier having a current NOA. Refer to a current fire directory listing for fire ratings of this roofing system assembly as well as the location of the fire barrier within the assembly. Fire classification is not part of this acceptance.

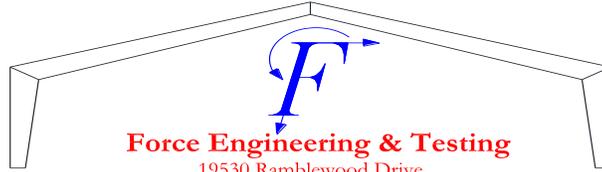
Shear Diaphragm:

Shear diaphragm values are outside the scope of this report.



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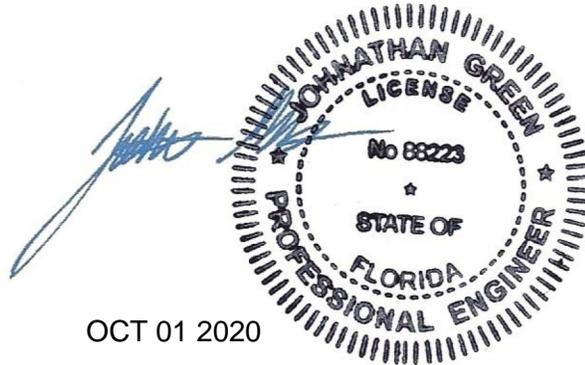
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Design Procedure:

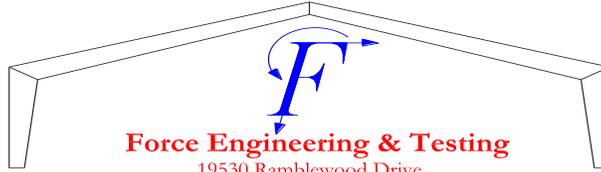
Based on the dimensions of the structure, appropriate wind loads are determined using Chapter 16 of the Florida Building Code 2020 for roof cladding wind loads. These component wind loads for roof cladding are compared to the allowable pressure listed above. The design professional shall select the appropriate erection details to reference in his drawings for proper fastener attachment to his structure and analyze the panel fasteners for pullout and pullover. Support framing must be in compliance with Florida Building Code 2020 Chapter 22 for steel, Chapter 23 for wood and Chapter 16 for structural loading.

*The Test Reports are owned by Metalforming, Inc. Metalforming, Inc. gives the above manufacturer permission to use these test reports.



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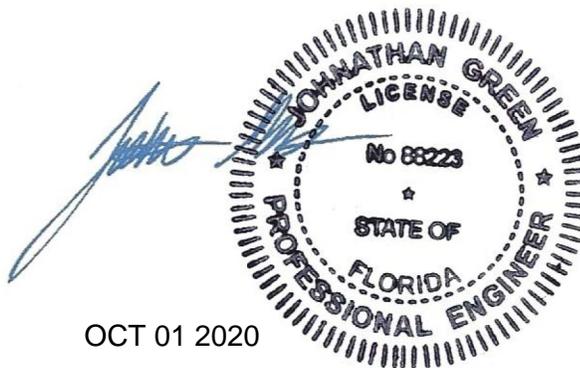
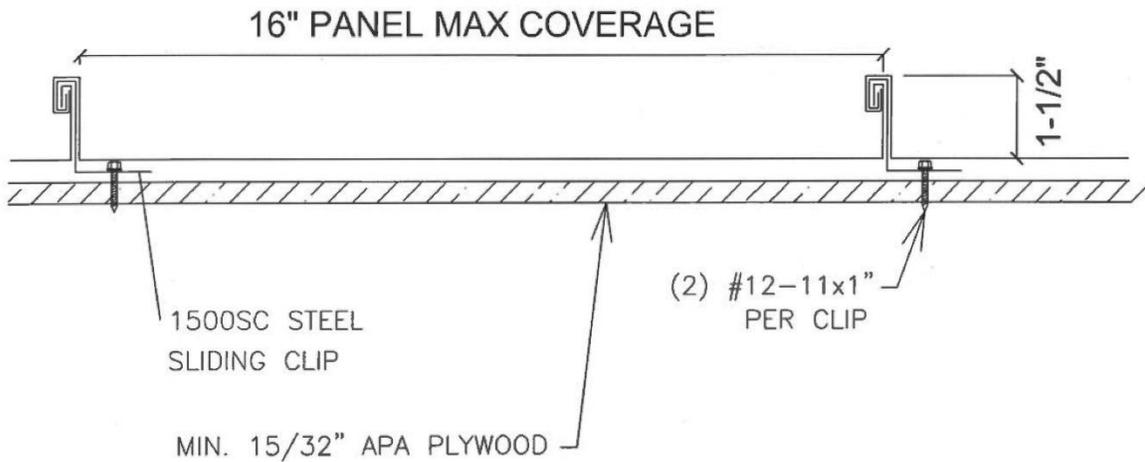
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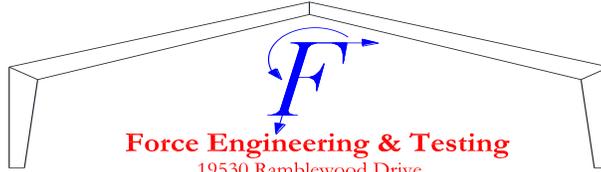
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SENTRIGARD ML 150H 24 GA. STEEL PANEL



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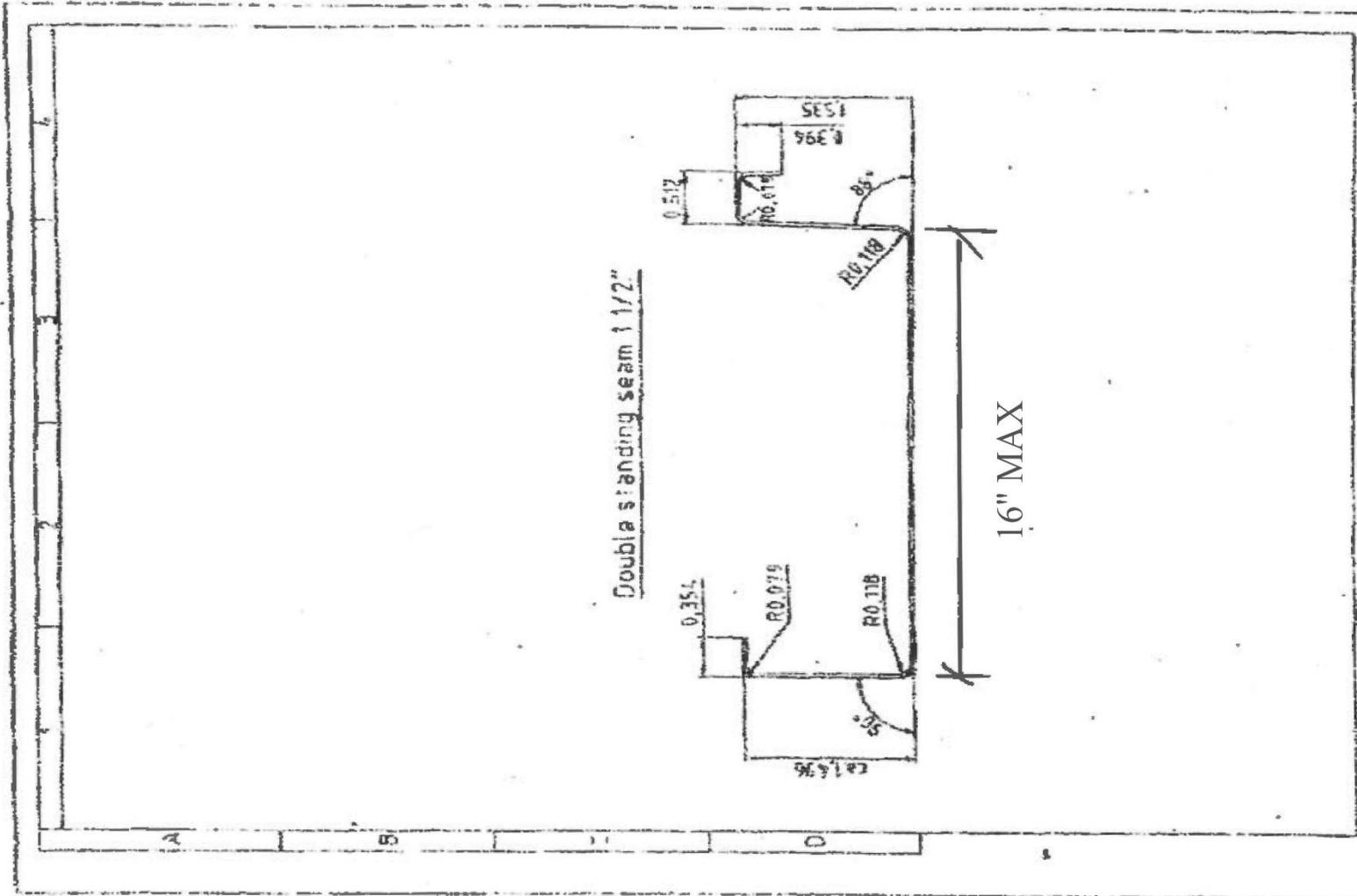
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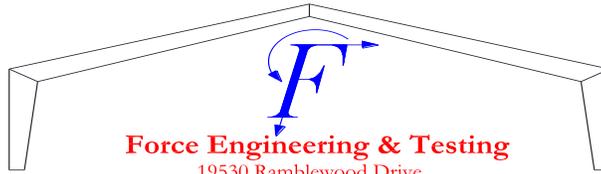
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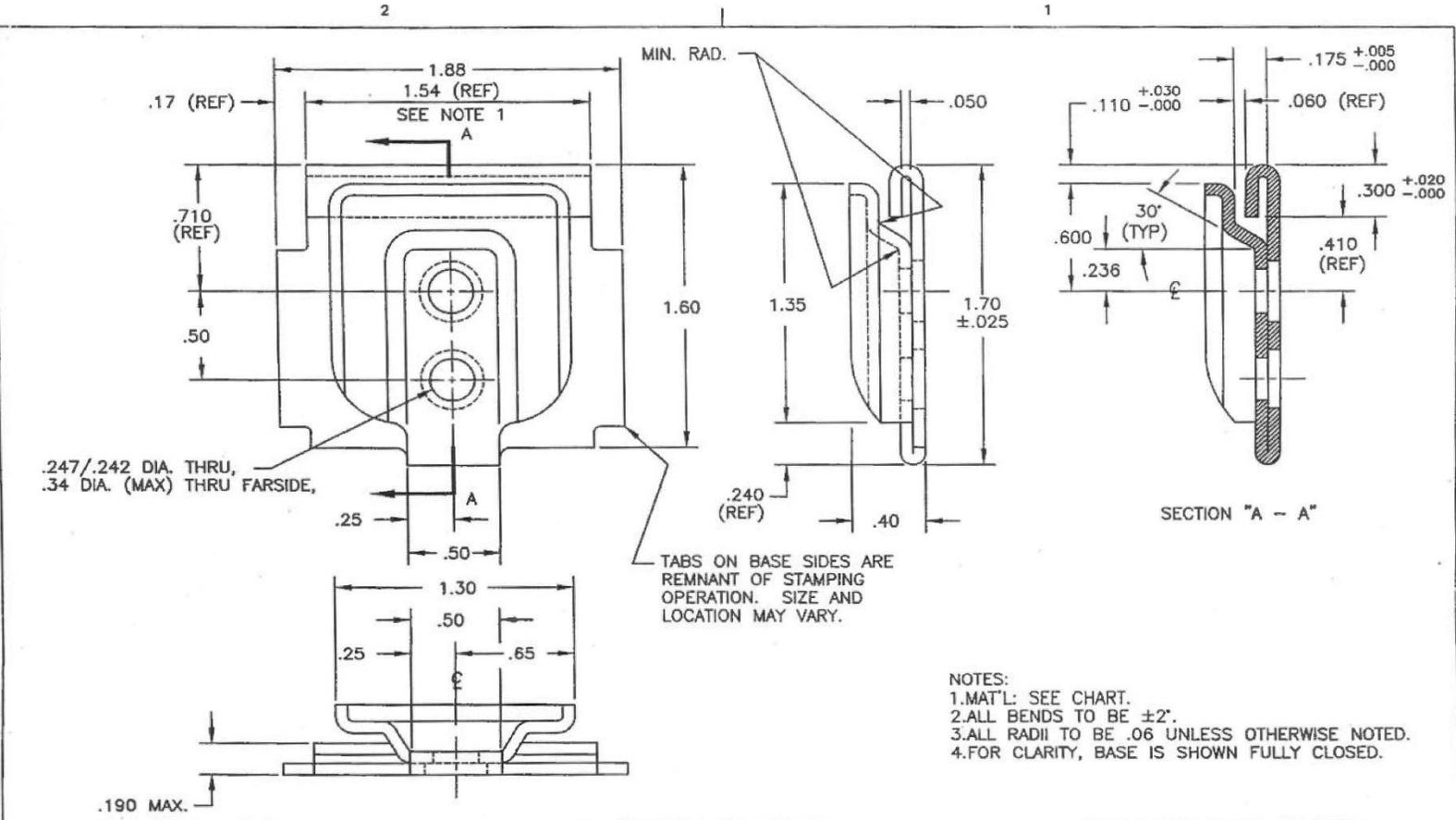
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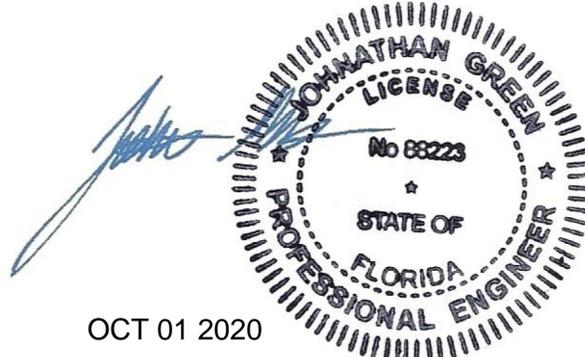


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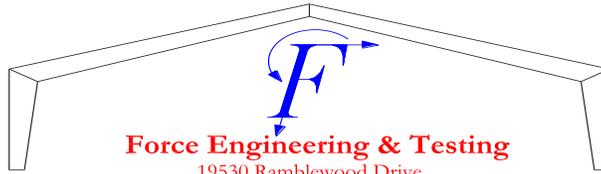
- NOTES:
 1. MAT'L: SEE CHART.
 2. ALL BENDS TO BE ±2'.
 3. ALL RADII TO BE .06 UNLESS OTHERWISE NOTED.
 4. FOR CLARITY, BASE IS SHOWN FULLY CLOSED.

										SFS intec, Inc. <small>P.O. Box 6226, Houston, TX 77261 Phone (813) 276-5271 Fax (813) 276-9881</small>			<small>TOLERANCES UNLESS OTHERWISE SPECIFIED ANGLES AS SHOWN DECIMAL SIZE ± .01 FRACTIONS SIZE ± .005</small>						
MD412 (.060-.065 TH.) G90 GALV. STL; PLAIN FINISH (SEE MPS-008)										L	3/11/02	5111	N/				BASE DETAILS FOR TWO PIECE SLIDING CLIP		
PMW W/ SEALANT	PMW W/O SEALANT	MATERIAL DESCRIPTION	REV.	DATE	ZONE	ECH	ENR	INT/	DESCRIPTION	DRWN BY	SCALE	DATE	CHECKED	APPROVAL	DWG. NO.				
										ES	NTS	4/26/94			SD-714B				



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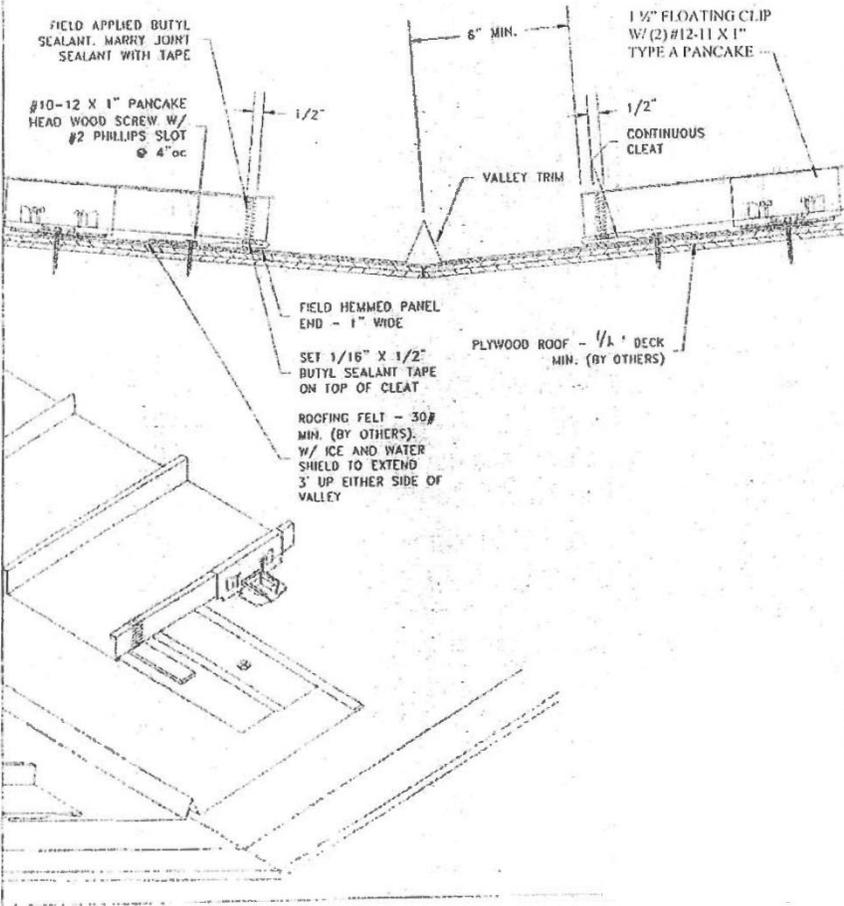
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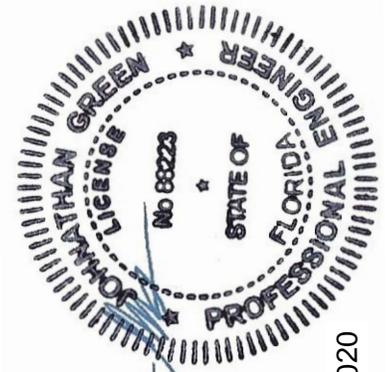
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VALLEY

- 1.) Temporarily attach valley trim at ends w/ #10-12 x 1" pancake head wood screws.
- 2.) Attach cleat w/ #10-12 x 1" pancake head wood screws @ 4"oc.
- 3.) Apply a continuous strip of butyl sealant tape across the top of the cleat.
- 4.) Install panels so that the cleat is engaged into the field applied hem.

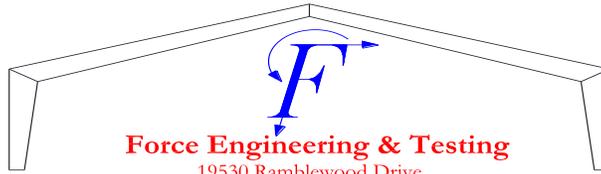


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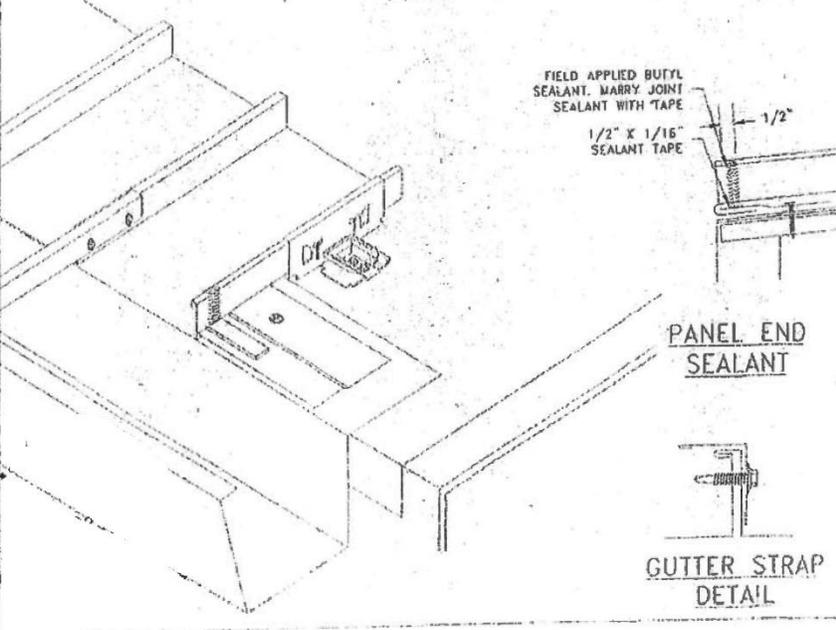
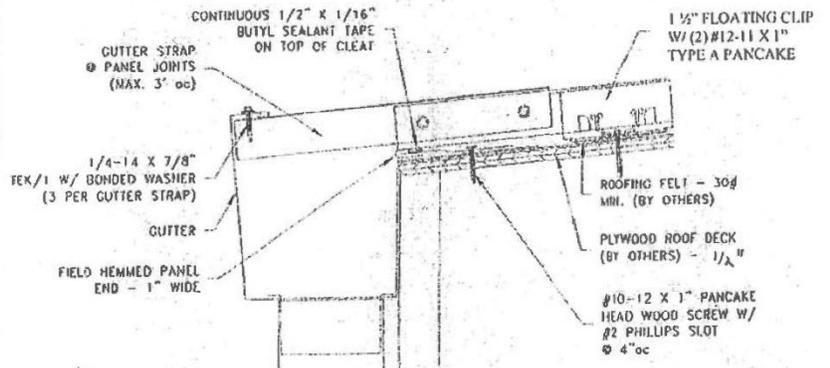
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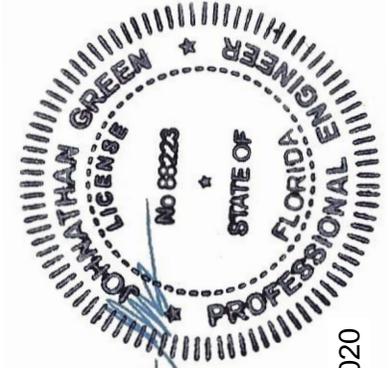
LOW EAVE / GUTTER

- 1.) Temporarily attach gutter at ends w/ #10-12 x 1" pancake head wood screws.
- 2.) Attach cleat through gutter w/ #10-12 x 1" pancake head wood screws @ 4"oc.
- 4.) Apply a row of butyl sealant tape across the top of the cleat.
- 5.) Install panels so that the cleat is engaged into the field applied hem.

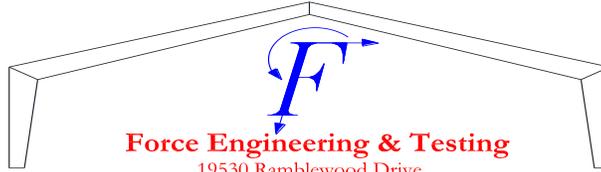


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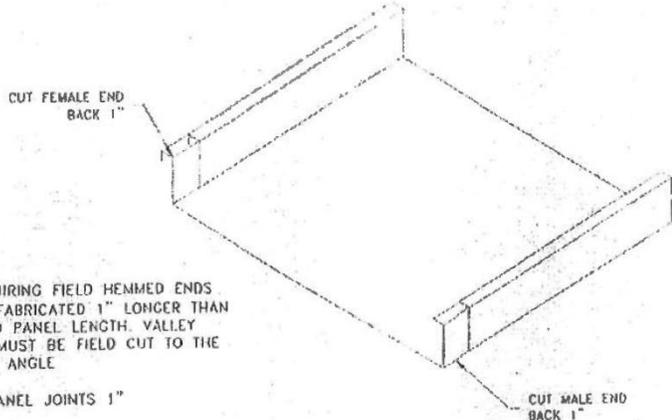


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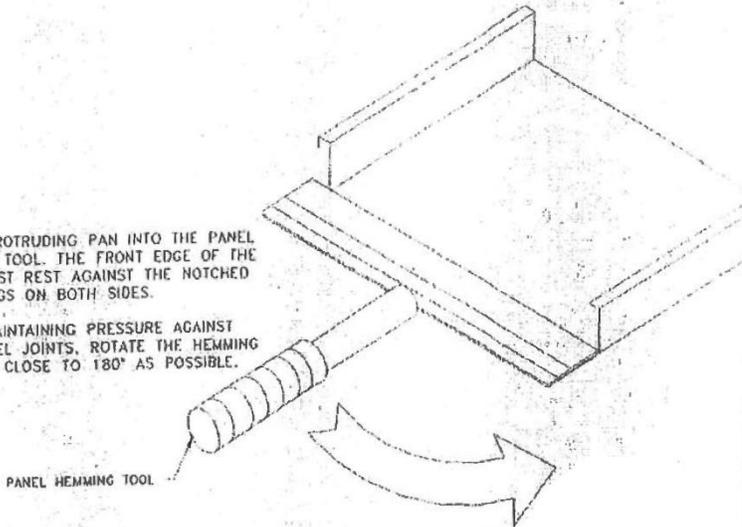


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FIELD HEMMED PANEL END



1. PANELS REQUIRING FIELD HEMMED ENDS SHOULD BE FABRICATED 1" LONGER THAN THE FINISHED PANEL LENGTH. VALLEY CONDITIONS MUST BE FIELD CUT TO THE APPROPRIATE ANGLE
2. CUT BACK PANEL JOINTS 1"

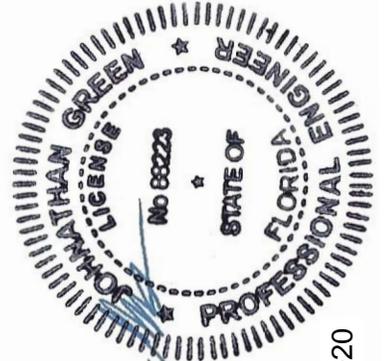


3. PLACE PROTRUDING PAN INTO THE PANEL HEMMING TOOL. THE FRONT EDGE OF THE TOOL MUST REST AGAINST THE NOTCHED JOINT LEGS ON BOTH SIDES.
4. WHILE MAINTAINING PRESSURE AGAINST THE PANEL JOINTS, ROTATE THE HEMMING TOOL AS CLOSE TO 180° AS POSSIBLE.

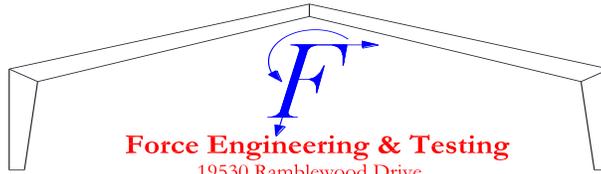
5. INSPECT COMPLETED HEM TO INSURE THAT THE HEM IS OPENED AND CAPABLE OF RECEIVING THE CLEAT (SEE ERECTION DETAILS).



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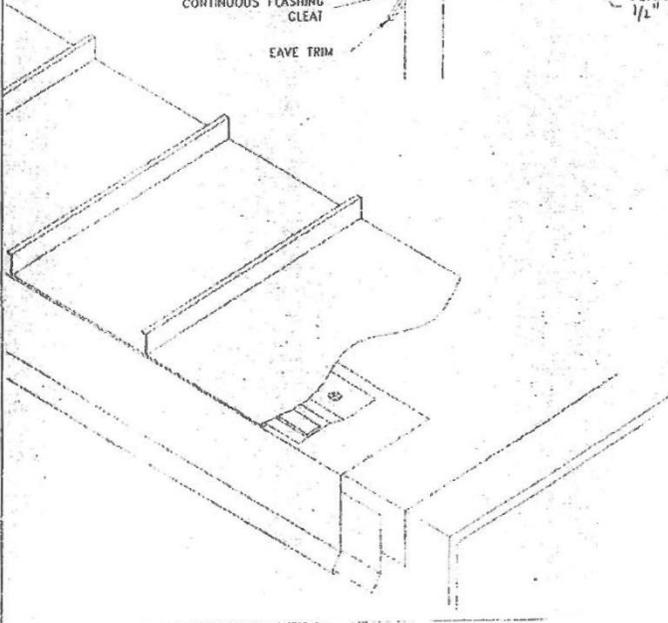
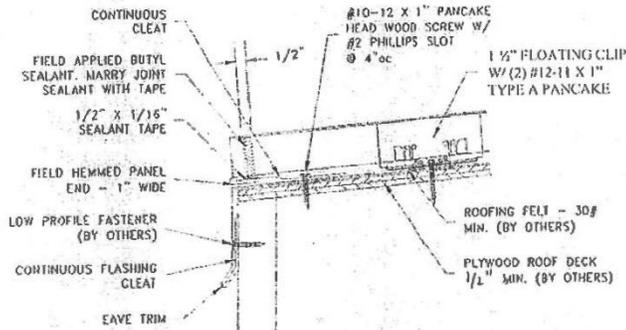
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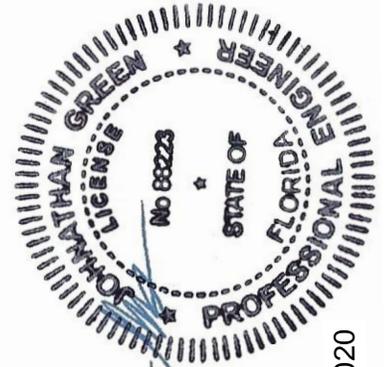
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LOW EAVE

- 1.) Temporarily attach eave trim at ends w/ #10-12 x 1" pancake head wood screws.
- 2.) Attach cleat through eave trim w/ #10-12 x 1" pancake head wood screws @ 4"oc.
- 4.) Apply a row of butyl sealant tape across the top of the cleat.
- 5.) Install panels so that the cleat is engaged into the field applied here.

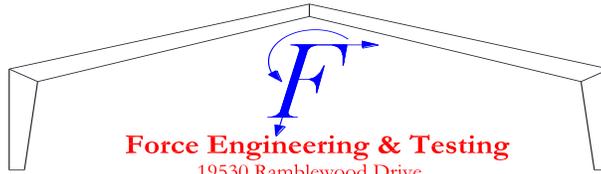


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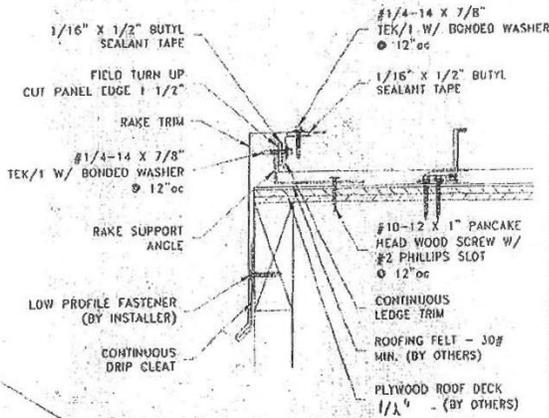
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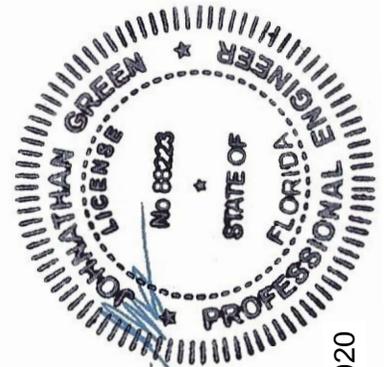
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HIGH PROFILE RAKE

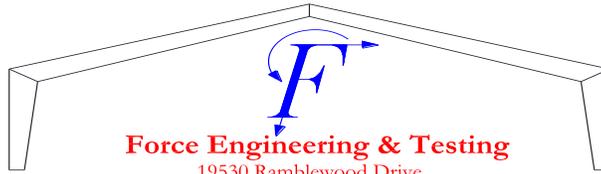
- 1.) Secure rake support angle through slots w/ #10-12 x 1" pancake head wood screw @ 4"oc.
- 2.) Turn panel edge up 1 1/2".
- 3.) Apply a continuous strip of sealant tape to the inside leg of the upturned edge
- 4.) Set ledge trim on sealant tape, and secure with 1/4-14 x 7/8" HWH Tek/1 @ 12"oc.
- 5.) Apply a continuous strip of sealant tape to the top of the ledge trim.
- 6.) Install the rake trim. Secure to ledge trim with 1/4-14 x 7/8" HWH Tek/1 fasteners at 12"oc.



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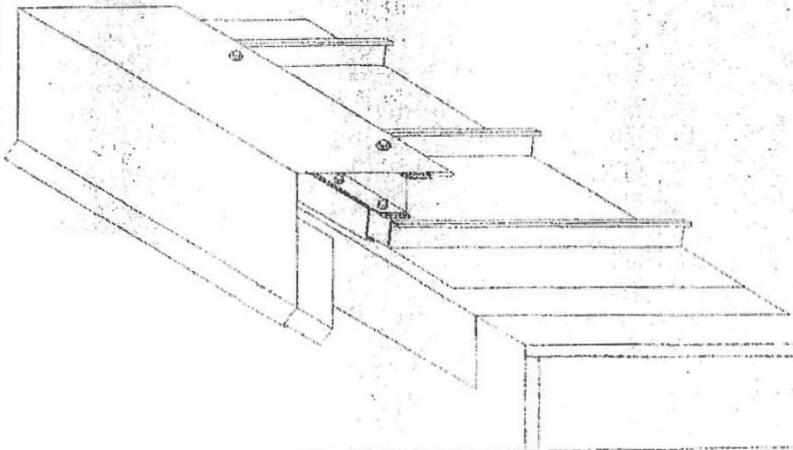
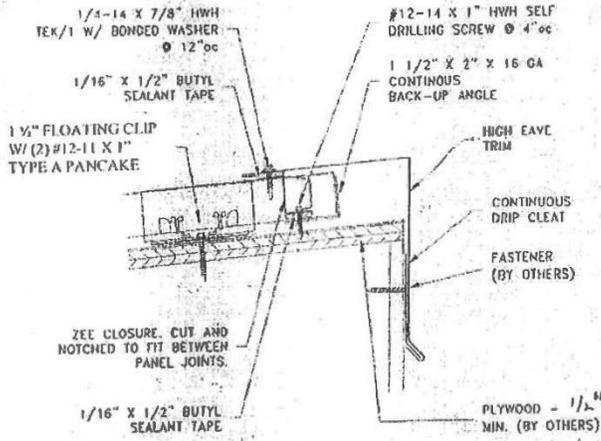
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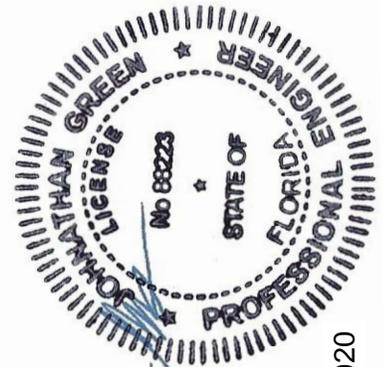
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HIGH EAVE

- 1.) Determine location of zee closure. Apply sealant tape to flat of panel.
- 2.) Place closure on top of sealant tape. Clamp back-up angle to bottom of panel. Secure through lape and panel with #12-14 x 1" HWH Tek/3 fastener @ 4"oc. Seal the lab of the closure to the side joints with butyl sealant.
- 3.) Apply a continuous strip of sealant tape to the top of the zee closure. Seal between ends of tape with butyl sealant.
- 4.) Install the high eave trim. Secure to closure zee with 1/4-14 x 7/8" HWH Tek/1 fasteners at 12"oc.



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