

## Product Evaluation Report

### Min. 29 Ga. AG Roof Panel Over 15/32 Plywood Florida Product Approval# 19041.1

Florida Building Code 2014 (5<sup>th</sup> Edition)

Per Rule 61G20-3

Method: 1-D

Category: Roofing

Subcategory: Metal Roofing

Compliance Method: 61G20-3.005(1)(d)

Zone: Non HVHZ

**Product Manufacturer:**

1<sup>st</sup> Coast Metal Roofing Supply  
186 State Road 207 P.O. Box 177  
East Palatka, FL 32131

**Engineer Evaluator:**

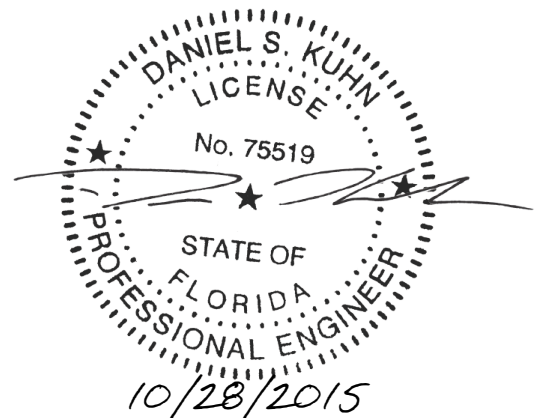
Daniel S. Kuhn, P.E.  
Kuhn Engineering, LLC.  
FL PE# 75519  
FL Evaluation ANE ID: 10743

**Validator:**

Locke Bowden, P.E., FL# 49704  
9450 Alysburry Place  
Montgomery, AL 36117

**Contents:**

Evaluation Report: Pages 1-4



# KUHN ENGINEERING

[STRUCTURAL ENGINEERING]

---

<b>Compliance Statement:</b>	The product as described in this report has demonstrated compliance with the FBC 2014 (5 <sup>th</sup> Edition), Sec. 1504.3.2 and 1504.7.
<b>Product Description:</b>	AG Roof panel, Min. 29 Ga. Steel, 36" Coverage, through fastened roof panel over minimum 15/32" plywood decking. Non-structural application.
<b>Panel Material/Standards:</b>	Material: Minimum 29 Ga., ASTM A792 Aluminum-zinc coated steel (Optional Paint Finish) Steel Grade: Min. Grade 80 Corrosion Resistance: Panel material shall comply with FBC 2014, Sec. 1507.4.3.
<b>Panel Dimension(s):</b>	Material Thickness: 29 Ga. Minimum Width: 36" (Coverage) Rib Height: ¾" Major Rib at 9" o.c. Panel Seam: Lap sealant must be used for slopes less than 3:12 Panel Rollformer: Cidan Machinery, Inc.
<b>Panel Fastener:</b>	#10-15 X 1-1/2" HiLo Woodgrip w/ sealer washer or approved equal 1/4" minimum penetration through plywood. Corrosion Resistance: Per FBC 2014, Sec. 1506.6 and 1507.4.4
<b>Minimum Slope Range:</b>	Minimum slope 1/2:12 and shall comply with FBC 2014, Sec. 1507.4.2 and 1504.7, as well as in accordance with Manufacturer's recommendations.
<b>Underlayment (Optional):</b>	Shall comply with Florida Building Code 2014, Sec. 1507.4.5.1 and 1507.4.5.2.
<b>Panel Substrate:</b>	Minimum 15/32" Plywood.
<b>Plywood Support:</b>	Roof framing must be spaced at 24" o.c. maximum. Design of roof rafters/ trusses, plywood, and plywood attachment/nailing pattern are outside the scope of this report.

# KUHN ENGINEERING

[STRUCTURAL ENGINEERING]

**Shear Diaphragm:** Shear diaphragm values are outside the scope of this report.

**Installation:** Install as per manufacturer's installation instructions and recommended details. Refer to Table "A" below for fastener pattern and spacing.

Table "A"		
Maximum Total Uplift Design Pressures:	-78.5 psf*	-108.5 psf*
Fastener Pattern:	9" - 9" - 9" - 9"	6" - 3" - 6" - 3" - 6" - 3" - 6"
Fastener Spacing (max.):	24" o.c.	24" o.c.
* Allowable (ASD) Design Pressure Includes a FS = 2.0		

**Installation over Existing Shingles (Optional):**

AG panel may be installed over a single layer of existing roof shingles in accordance with the standards listed in FBC 2014, Section 1510.3. Attach panels directly over existing shingles and fasten into the decking material with a minimum 1/2" penetration through plywood. All five items listed under Sec. 1510.3 must be checked and verified.

**Design Procedure:** Based on the dimensions of the structure, appropriate wind loads are determined using Chapter 16 of the FBC 2014 for roof cladding wind loads. These component wind loads for roof cladding are compared to the allowable pressures 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 FBC 2014 (5<sup>th</sup> edition).

**Evaluation Report Scope:** The product evaluation is limited to compliance with the structural wind load requirements of the FBC, as relates to Rule 61G20-3.001.

**Limitations and Conditions of Use:**

1. Scope of "Limitations and Conditions of use" for this evaluation: This evaluation report for "Optional Statewide Approvals" contains technical documentation, specifications and installation method(s), which include "Limitations and Conditions of Use" throughout the

# KUHN ENGINEERING

[STRUCTURAL ENGINEERING]

---

report in accordance with Rule 61G20-3.005. Per Rule 61G20-3.004, the Florida Building Commission is the authority to approve products under “Optional Statewide Approval”.

2. Option for application outside “Limitations and Conditions of Use”: Rule 61G20-3.005(1) allows engineering analysis for “project specific approval by the local authorities having jurisdiction in accordance with the alternate methods and materials authorized in the Code”. Any modification of the product as evaluated in this report and approved by the Florida Building Commission is outside the scope of this evaluation and will be the responsibility of others.

3. This product is not for use in the High Velocity Hurricane Zone sections.

## Performance Standards:

The product has been tested in accordance with:

- UL 580-94 – Test for Uplift resistance of Roof Assemblies – with Revisions through February 1998
- UL1897-98 – Uplift Test for Roof Covering Systems

## Reference Data:

Tests performed by Force Engineering & Testing, Inc.

(FBC Organization # TST-5328):

- UL 1897-98 – Uplift Test for Roof Covering Systems  
Test report No. 384-0030T-10A, B / 593-0030T-10A, B  
(Dated 03/29/10)
- FM 4471, Sec. 5.4 Foot Traffic Resistance  
Test Report No. 384-0030T-10E / 593-0030T-10E  
(Dated 03/29/10)

Certificate of Independence by:

- Daniel S. Kuhn, P.E. (FL# 75519) at Kuhn Engineering, LLC.  
(FBC Organization # ANE ID: 10743)

## Test Standard Equivalence:

1. UL 580-94 test standard is equivalent to UL 580-06 test standard.
2. UL 1897-98 test standard is equivalent to UL 1897-04 test standard.

## Quality Assurance Entity:

The manufacturer has established compliance of roof panel products in accordance with the Florida Building Code and Rule 61G20-3.005(3) for manufacturing under a quality assurance program audited by an approved quality assurance entity.

# KUHN ENGINEERING

[STRUCTURAL ENGINEERING]

## Min. 29 GA. AG Panel Load Table Over Plywood

Building having a Roof Mean Height  $\leq 20'-0''$ ; Roof Slope  $1/2'' : 12'' - 6'' : 12''$  Gable Roof

Wind Speeds 100-140 mph, Exp. C, Risk Category II, based on FBC 2014

29 GA. AG PANEL FASTENER SPACING							
ZONE	FASTENER	SUBSTRATE	WIND SPEED (mph)				
			100	110	120	130	140
			ON CENTER SPACING	ON CENTER SPACING	ON CENTER SPACING	ON CENTER SPACING	ON CENTER SPACING
ZONE 1	#10-15 X 1-1/2"	15/32" PLYWOOD	24" TYPE 1	24" TYPE 1	24" TYPE 1	24" TYPE 1	24" TYPE 1
ZONE 2	#10-15 X 1-1/2"	15/32" PLYWOOD	24" TYPE 1	24" TYPE 1	24" TYPE 1	24" TYPE 1	24" TYPE 1
ZONE 3	#10-15 X 1-1/2"	15/32" PLYWOOD	24" TYPE 2	24" TYPE 2	24" TYPE 2	24" TYPE 2	24" TYPE 2

**Notes:**

- 1) Panel Description: AG panel, Min. 29 GA.,  $3/4''$  Tall Rib at 9" o.c., 36" Width
- 2) Panel Fastener: #10-15 x 1-1/2" HiLo Woodgrip w/ sealer washer or equivalent
- 3) Panel Rollformer: Cidan Machinery, Inc.
- 4) Maximum Allowable Panel Uplift Pressures based on UL 580/UL 1897 testing by Force Engineering  
 Test report #384-0030T-10A, B / 593-0030T-10A, B:  
 78.5 psf at 24" o.c. Type 1 Fastener Pattern  
 108.5 psf at 24" o.c. Type 2 Fastener Pattern
- 5) Substrate: Min. 15/32" thick plywood.
- 6) Existing Shingles (Optional): Panels may be attached over single layer of existing shingles as per requirements listed in this report.

