CBUCK Engineering

Specialty Structural Engineering

CBUCK, Inc. Certificate of Authorization #8064

Evaluation Report

"Grandrib 3®"

Metal Roof Assembly

Manufacturer:

Fabral, Inc.

3449 Hempland Road

Lancaster, Pennsylvania 17601

(800) 884-4484

for

Florida Product Approval

 # FL 13732.2 R1

Florida Building Code 2010

Per Rule 9N-3

Method: **1 - D**

Category: **Roofing**

Sub - Category: **Metal Roofing**

Product:	"Grandrib 3" Roof Panel
Material:	Aluminum
Panel Thickness:	0.024" (min.)
Panel Width:	36" (max.)
Support:	Wood Deck

Prepared by:

James L. Buckner, P.E., S.E.C.B.

Florida Professional Engineer # 31242

Florida Evaluation ANE ID: 1916

Project Manager: Diana Galloway

Report No. 11-201-GR3-A2W-ER

Date: 2 / 06 / 12

James L. Buckner, P.E., SECB
Florida P.E. # 31242
4/18/12

Contents:

CBUCK, Inc.

1399 N. Killian Drive, Suite 4, West Palm Beach, Florida 33403

Phone: (561)491-9927 Fax: (561)491-9928 Website: www.cbuckinc.net

Manufacturer:	**Fabral, Inc.**
Product Name:	**"Grandrib 3"**
Product Category:	Roofing
Product Sub-Category	Metal Roofing
Compliance Method:	State Product Approval Rule 9N-3.005 (1) (d)
Product/System Description:	"Grandrib 3®" 3/4" Rib Height, 36" wide, 0.024" Aluminum roof panel attached to Wood Deck with screws.
Product Assembly as Evaluated:	Refer to Page 4 of this report for product assembly components/materials & standards: 1. Roof Panel: 2. Fasteners: 3. Underlayment: 4. Insulation (Optional): 5. Barrier (Optional):
Support:	**Type:** Wood Deck (Design of support system is outside the scope of this evaluation) **Description:** • 15/32" or greater Plywood , or • Wood plank deck (based on minimum density/specific gravity of 0.42)
Slope:	Minimum slope shall be in accordance with manufacturer's recommendations, FBC Section 1507.4.2 and applicable code sections.
Performance:	Wind Uplift Resistance: • Design Uplift Pressure: **METHOD 1: - 105 PSF** **METHOD 2: - 172.5 PSF**

Performance Standards: The product described herein has demonstrated compliance with:

- UL580-06 – *Test for Uplift Resistance of Roof Assemblies—with Revisions through February 1998*
- UL 1897-04 – *Uplift test for roof covering systems*

Standards Equivalency: The UL 580-94, UL 1897-98 standard version used to test the evaluated product assembly is equivalent with the prescribed standards in UL 580-06, UL 1897-04 adopted by the Florida Building Code 2010.

Code Compliance: The product described herein has demonstrated compliance with Florida Building Code 2010, Section 1504.3.2.

Evaluation Report Scope: This product evaluation is limited to compliance with the structural requirements of the Florida Building Code, as related to the scope section to Florida Product Approval Rule 9N-3.001.

Limitations and Conditions of Use:

- Scope of "Limitations and Conditions of Use" for this evaluation:
  This evaluation report for "Optional Statewide Approval" contains technical documentation, specifications and installation method(s) which include "Limitations and Conditions of Use" throughout the report in accordance with Rule 9N-3.005. Per Rule 9N-3.004, the Florida Building Commission is the authority to approve products under "Optional Statewide Approval".
- Option for application outside "Limitations and Conditions of Use"
  Rule 9N-3.005(1)(e) 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.
- Design of support system is outside the scope of this report.
- Fire Classification is outside the scope of Rule 9N-3, and is therefore not included in this evaluation.
- This evaluation report does not evaluate the use of this product for use in the High Velocity Hurricane Zone code section. (Dade & Broward Counties)

Quality Assurance: The manufacturer has demonstrated compliance of roof panel products in accordance with the Florida Building Code and Rule 9N-3.0005 (3) for manufacturing under a quality assurance program audited by an approved quality assurance entity through **UL, LLC** (FBC Organization ID# QUA 9625).

Components/Materials & Standards (By Manufacturer):

Roof Panel: "Grandrib 3"

Material:	Aluminum
Thickness:	0.024" (min.)
Panel Width:	36" (max.) Coverage
Rib Height:	3/4"
Alloy Type:	3105 (in compliance with ASTM B 209)
Corrosion Resistance:	Per FBC Section 1507.4.3

Fastener: (Panel to Deck)

Type:	Hex-Head Wood Screw with WSW
Size :	#10-16 x 1-1/2"
Corrosion Resistance:	Per FBC Section 1506.6 and 1507.4.4
Standard:	Per ANSI/ASME B18.6.4

Underlayment:
Per manufacturer's guidelines as required in FBC Section 1507.4.5

Components/Materials & Standards (By Others):

Insulation (*Optional):*

Type:	Rigid Insulation Board
Thickness:	3" (max.)
Properties:	
Density:	2.25 pcf (lbs/ft^3) min.
Or Compressive Strength:	20 psi min.

Insulation shall comply with FBC Section 1508. When insulation is incorporated, fastener length shall conform to penetrate thru bottom of support a minimum of 3/16".

Barrier (*Optional):*

Barrier Board:	Approved Barrier, up to 1/2" thick

Installation:

Installation Method:
(Refer to **"TABLE A"** below and drawings on Pages 6-9 of this report.)

- Fastener Spacing: **Refer to "TABLE A" Below**
  METHOD 1: Along the row, with a fastener on ***one*** side of panel ribs)
  METHOD 2: Along the row, with a fastener on ***each*** side of panel ribs)
- Row Spacing: **Refer to "TABLE A" Below**
  (along the length of the panel and nominally within 3" from all ends)
- Rib Interlock: Lapped
- Minimum fastener penetration thru bottom of support, 3/16".

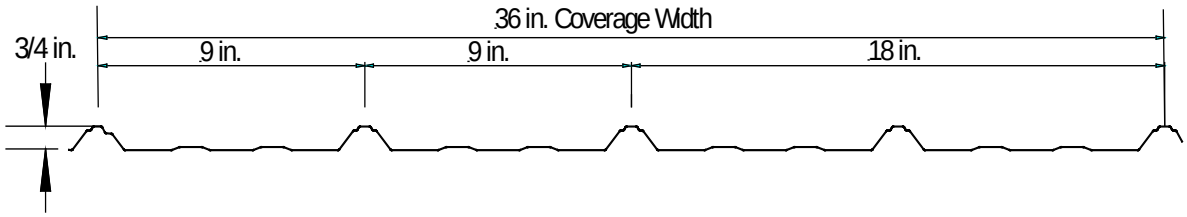
TABLE "A"		
	METHOD 1:	**METHOD 2:**
Design Pressure:	**- 105 PSF**	**- 172.5 PSF**
Fastener Spacing (Nominal):	5-1/2",3-1/2" Pattern (Refer to Drawing Pg 7)	5-1/2",3-1/2" Pattern (Refer to Drawing Pg 7)
Row Spacing:	24" o.c.	12" o.c.

Install the "Grandrib 3" roof panel assembly in compliance with the installation method listed in this report and applicable code sections of FBC 2010. The installation method described herein is in accordance with the scope of this evaluation report. Refer to manufacturer's installation instructions as a supplemental guide for attachment.

Referenced Data:

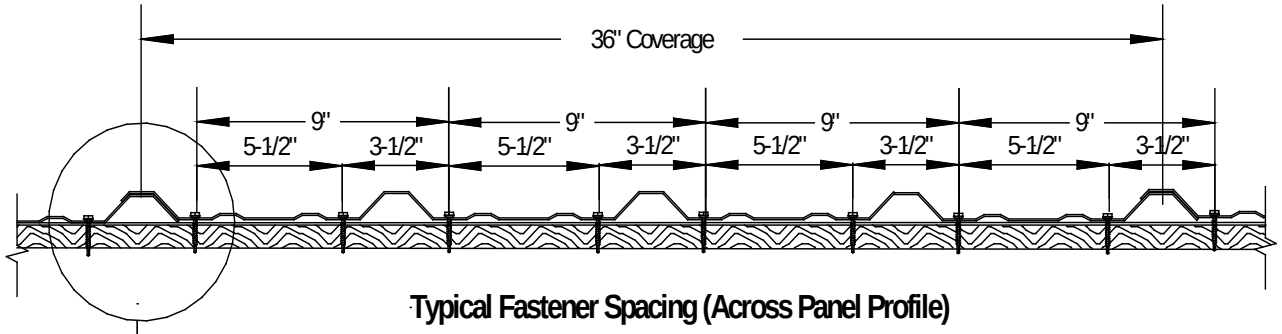
1. UL580 /UL1897 Uplift Test
   By Architectural Testing, Inc. (FBC Organization ID# TST 1558)
   Report #: A3761.01-109-44-R0, Test Date: 09 / 10 / 10
2. Equivalency of Test Standard Certification
   By James L. Buckner, P.E. @ CBUCK Engineering (FBC Organization #ANE 1916)
3. Quality Assurance
   UL, LLC (FBC Organization ID# QUA 9625)
4. Certification of Independence
   By James L. Buckner, P.E. @ CBUCK Engineering
   (FBC Organization # ANE 1916)

Installation Method
Fabral, Inc.
"Grandrib 3®" (0.024" Alum.) Roof Panel attached to 1/2" Plywood Deck

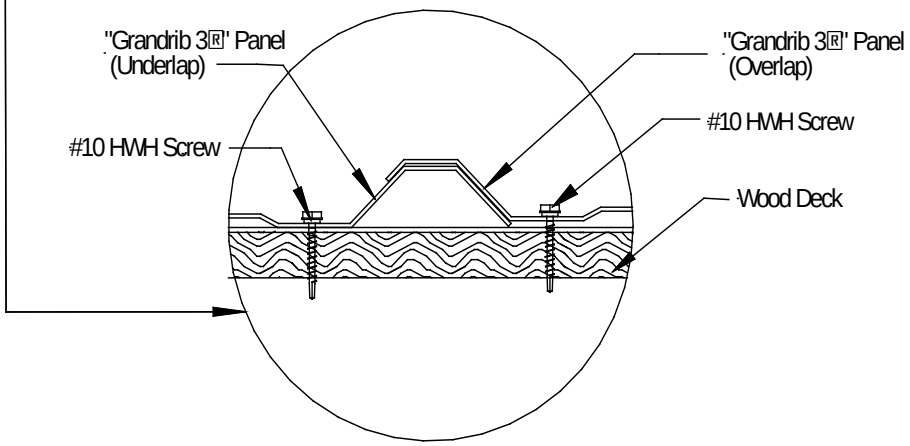


Typical Panel Profile

Installation Method
Fabral, Inc.
"Grandrib 3®" (0.024" Aluminum) Roof Panel attached to 1/2" Plywood Deck

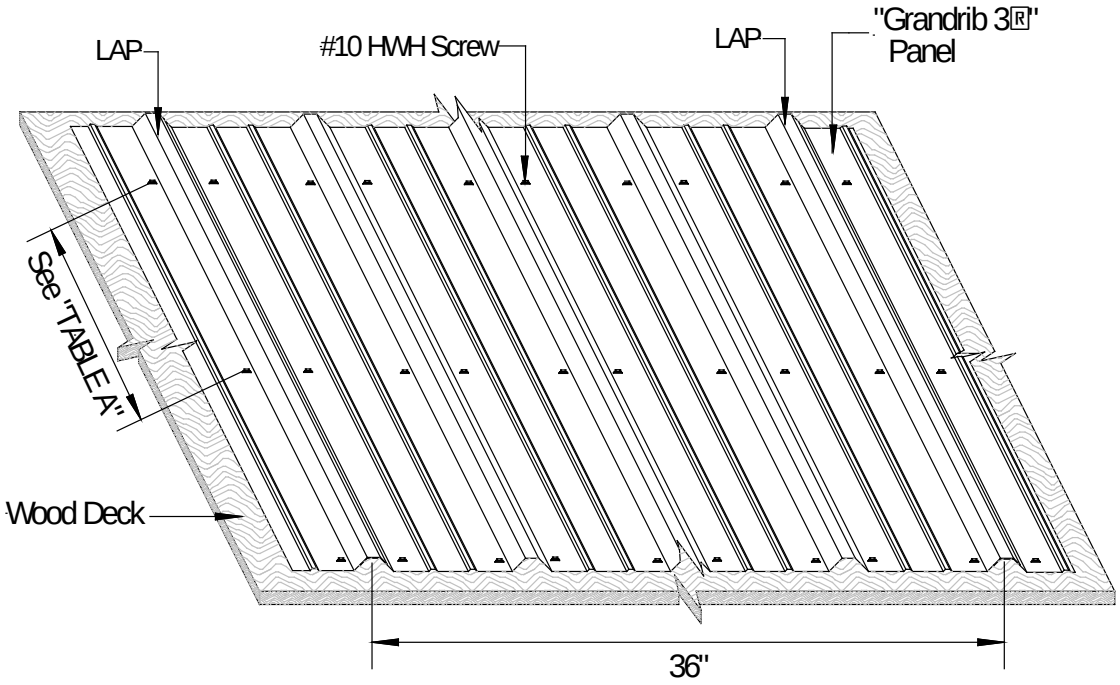


Typical Fastener Spacing (Across Panel Profile)



METHOD 1 & 2:
Typical Panel Assembly
Section View

Installation Method
Fabral, Inc.
"Grandrib 3®" (0.024" Aluminum) Roof Panel attached to 1/2" Plywood Deck



METHOD 1 & 2:
Typical Roof Assembly
Isometric View

TABLE "A"		
	METHOD 1:	**METHOD 2:**
Design Pressure:	**- 105 PSF**	**- 172.5 PSF**
Fastener Spacing:	5-1/2",3-1/2" Pattern (Refer to Drawing Pg 7)	5-1/2",3-1/2" Pattern (Refer to Drawing Pg 7)
Row Spacing:	24" o.c.	12" o.c.