

## Force Engineering & Testing

19530 Ramblewood Drive  
Humble, Texas 77338  
Phone: (281) 540-6603 FAX: (281) 540-9966  
Website: [www.forceengineeringtesting.com](http://www.forceengineeringtesting.com)

### Product Evaluation Report **FREEDOM METALS, LLC.**

#### **29 Ga. Freedom Tuff Roof Panel over 1x4 Wood Purlins**

#### **Florida Product Approval # 33548.3**

Florida Building Code 2020

Per Rule 61G20-3

Method: 1 –D

Category: Roofing

Subcategory: Metal Roofing

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

NON HVHZ

#### Product Manufacturer:

**Freedom Metals, LLC**

18504 SE Highway 19

Cross City, Florida 32628

#### Engineer Evaluator:

**Johnathan Green, P.E. #88223**

Florida Evaluation ANE ID: 12901

#### Validator:

**Brian Jaks, P.E. #70159**

#### Contents:

**Evaluation Report    Pages 1 - 5**

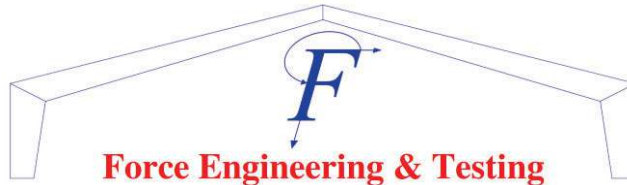


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### Compliance Statement:

The product as described in this report has demonstrated compliance with the Florida Building Code 2020, Sections 1504.3.2, 1504.7.

### Product Description:

Freedom Tuff, 29 Ga. Steel, 36" coverage, through fastened roof panel over 1x4 wood purlins over one layer of asphalt shingles (optional) over min. 7/16" OSB decking. Non-Structural Application.

### Panel Material/Standards:

Material: Minimum 29 Ga. Steel conforming to Florida Building Code 2020 Section 1507.4.3.

Yield Strength: Min. 80.0 ksi

Corrosion Resistance: Panel Material shall comply with Florida Building Code 2020, Section 1507.4.3.

### Panel Dimension(s):

Thickness: 0.014" min.

Width: 36" maximum coverage

Rib Height: 3/4" major rib at 9" O.C.

### Panel Fastener:

#10-16 x 1 1/2" WoodZip HiLo TP-17 with sealing washing or approved equal.

Corrosion Resistance: Per Florida Building Code 2020, Section 1507.4.4.

### Substrate Description:

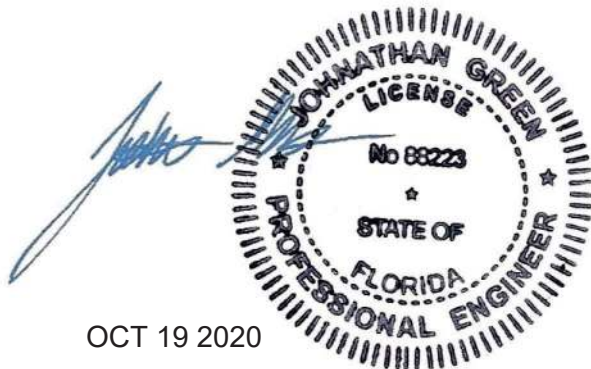
Min. 1x4 No. 2 wood purlins over maximum one layer of asphalt shingles/felt paper (optional) over min. 7/16" OSB decking over supports at maximum 24" O.C. The 1x4 wood purlins attached through decking into rafters with (2) #9 x 3" deck screws (Min. 1 1/2" screw penetration into rafters) at 24" O.C. maximum. Substrate must be designed in accordance w/ Florida Building Code.

### Allowable Design Uplift Pressures:

Table "A"

Maximum Allowable Uplift Design Pressure:	78.5 psf	127.3 psf	176.0 psf
Fastener Pattern:	9"-9"-9"-6"-3"	9"-9"-9"-6"-3"	9"-9"-9"-6"-3"
Fastener Pattern / 1x4 Purlin Spacing:	24" O.C.	18" O.C.	12" O.C.

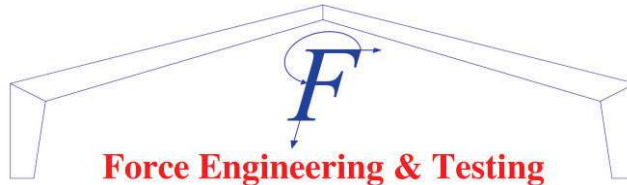
\*Design Pressure includes a Safety Factor = 2.0.



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- Code Compliance:** The product described herein has demonstrated compliance with The Florida Building Code 2020, Section 1504.3.2, 1504.7.
- 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:
- UL 580-06 - Test for Uplift Resistance of Roof Assemblies
  - UL 1897-2012 - Uplift Test for Roof Covering Systems
  - FM 4471-92 - Foot Traffic Resistance Test
- Reference Data:**
1. UL 580-06 / 1897-2012 Uplift Test  
Force Engineering & Testing (FBC Organization # TST-5328)  
Report No. 731-0141T-20.
  2. FM 4471-10, Section 4.4 Foot Traffic Resistance Test  
Force Engineering & Testing (FBC Organization # TST-5328)  
Report No. 731-0141T-20.
  3. Certificate of Independence  
By Johnathan Green, P.E. #88223
- Test Standard Equivalency:** The FM 4471-10, Foot Traffic Resistance test standard is equivalent to the FM 4471-92, Foot Traffic Resistance 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.
- Minimum Slope Range:** Minimum Slope shall comply with Florida Building Code 2020, including Section 1507.4.2 and in accordance with Manufacturers recommendations. For slopes less than 3:12, lap sealant must be used in the panel side laps.

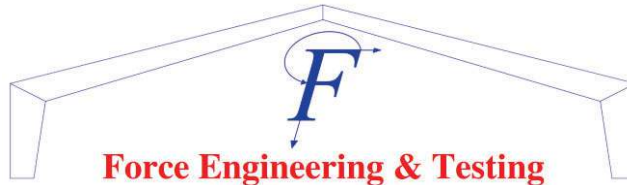


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- Installation:** Install per manufacturer's recommended details.
- Underlayment:** Per Florida Building Code 2020, Section 1507.1 and manufacturer's installation guidelines.
- Roof Panel Fire Classification:** Fire classification is not part of this evaluation.
- Shear Diaphragm:** Shear diaphragm values are outside the scope of this report.
- 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.

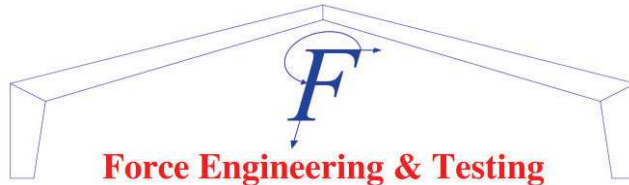


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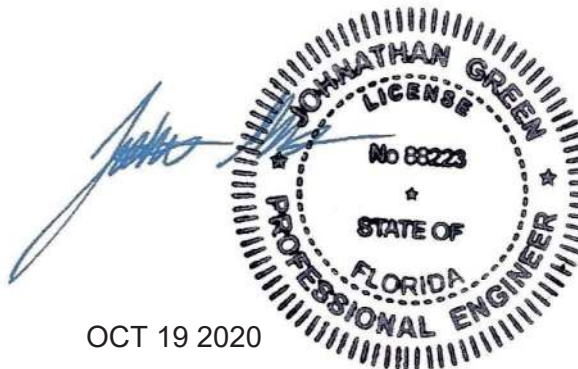
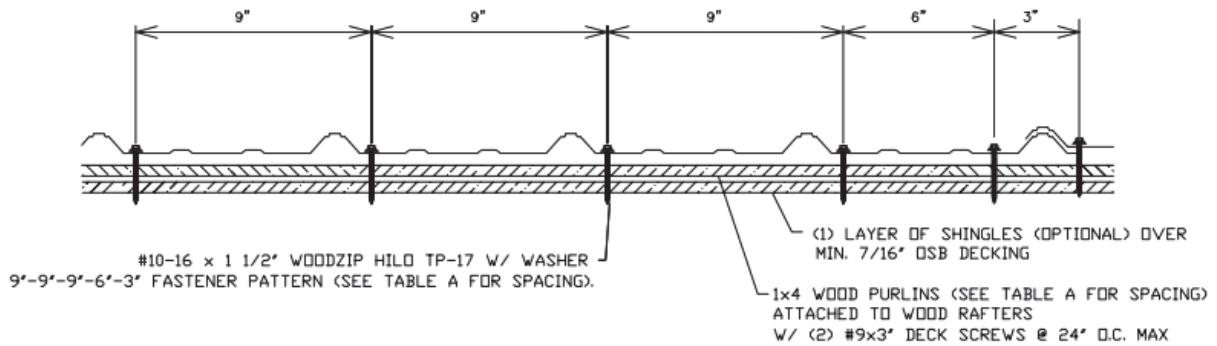
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