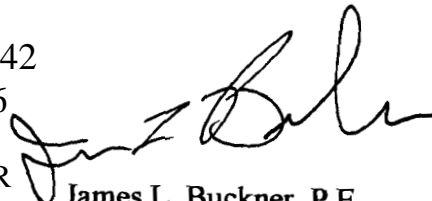


**Evaluation Report**  
*of*  
**Millennium Metals, Inc.**  
**“5V-Crimp” & “Millennium-V”**  
**Metal Roof Assembly**  
*for*  
**Florida Product Approval**  
**# FL 7809.1 R1**  
**Florida Building Code 2007**  
**Per Rule 9B-72**  
**Method: 1 - D**  
**Category: Roofing**  
**Sub - Category: Metal Roofing**

**Product:** 5V-Crimp & Millennium-V Roof Panel  
**Material:** Steel  
**Panel Thickness:** 26 Gauge Minimum  
**Panel Dimensions:** 24” Net Coverage Width  
**Support Type:** 1/2” Plywood Deck

**Prepared for:**  
**Millennium Metals, Inc.**  
10200 Eastport Road  
Jacksonville, FL 32218

**Prepared by:**  
**James L. Buckner, P.E.**  
Florida Professional Engineer # 31242  
Florida Evaluation ANE ID: 1916  
Project Manager: Diana Galloway  
Report No. 08-135-5V-24-S6W-1/2”-ER  
Date: 3 / 19 / 08

  
James L. Buckner, P.E.  
Florida P.E. # 31242  
3/26/08

Contents:  
Evaluation Report Pages 1 – 6

# CBUCK Engineering

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|                                    |                                                                                                                                                                                         |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Manufacturer:</b>               | <b>Millennium Metals, Inc.</b>                                                                                                                                                          |
| <b>Product Name:</b>               | <b>5V-Crimp &amp; Millennium-V</b>                                                                                                                                                      |
| <b>Product Category:</b>           | Roofing                                                                                                                                                                                 |
| <b>Product Sub-Category</b>        | Metal Roofing                                                                                                                                                                           |
| <b>Compliance Method:</b>          | State Product Approval Rule 9B-72.070 (1) (d)                                                                                                                                           |
| <b>Panel Description:</b>          | 5V-Crimp & Millennium-V, Lapped, Steel Roof Panel                                                                                                                                       |
| <b>Panel Material / Standards:</b> | Material Type: Steel<br>Yield Strength: 40 ksi minimum<br>Corrosion Resistance:<br>Material shall comply with the Florida Building Code (FBC), 2007 Table 1507.4.3.                     |
| <b>Panel Dimension(s)</b>          | Width: 24" Maximum (Net Coverage Width)<br>Thickness: 26 gauge minimum<br>Rib Height: 7/16"                                                                                             |
| <b>Support Type:</b>               | <b>Wood Deck</b><br>(Design of support system is not included in this evaluation)                                                                                                       |
| <b>Support Description:</b>        | <ul style="list-style-type: none"><li>• 15/32" or greater plywood, or</li><li>• Wood plank</li></ul>                                                                                    |
| <b>Slope Range:</b>                | Minimum slope shall be per FBC 2007, Section 1507.4.2, and in compliance with the Manufacturers recommendations<br><b>But no less than 3:12.</b>                                        |
| <b>Design Uplift Pressure:</b>     | <b>-113.75 PSF</b> ( Safety Factor of 2:1 )                                                                                                                                             |
| <b>Underlayment:</b>               | Underlayment shall be per manufacturer's guidelines as required in FBC Section 1507.4.5                                                                                                 |
| <b>Insulation:</b>                 | <b>(Optional)</b> Rigid Insulation Board, 3" maximum thickness and with a density of 2.25 pcf (lbs/ft <sup>3</sup> ) minimum or a compressive strength of 25 psi minimum.               |
| <b>Fire Classification:</b>        | Fire Classification is outside the scope of Rule 9B-72, and is therefore not included in this evaluation. Additional approved substrates may be added for Fire Classification purposes. |

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- Component(s) Description:** **Roof Panel Fasteners**  
Type: Hex-Head wood screws with EPDM bonded steel washer  
Size: #9 x minimum penetration through deck 3/16"  
Corrosion Resistance: Per FBC Section 1507.4.4  
Standard: Per ANSI/ASME B18.6.1.
- Installation:** **“5V-Crimp & Millennium-V” Roof Panel to Deck**  
1. Row spacing: 12” o.c.  
(along the length of the panel and within 3” from all ends)  
2. Fastener spacing: 6” o.c.  
(along each row)  
  
Fasteners shall penetrate through deck a minimum of 3/16”.  
  
Install the system in compliance with the attached installation method.  
Refer to manufacturer’s installation instructions as a supplemental guide for attachment.
- Quality Assurance:** The manufacturer has demonstrated compliance of roof panel products in accordance with the Florida Building Code and Rule 9B-72.070 (3) for manufacturing under a quality assurance program audited by an approved quality assurance entity through **Keystone Certifications, Inc.** (FBC Organization #: QUA 1824)
- Performance Standards:** The product described herein has been tested in accordance with:  
• **UL580-94 – Test for Uplift Resistance of Roof Assemblies—with Revisions through February 1998**  
• **UL 1897-98 – Uplift test for roof covering systems**
- Code Compliance:** The product described herein has demonstrated compliance with the Florida Building Code 2007, Section 1504.3.2
- Evaluation Report Scope:** This product evaluation is limited to compliance with the structural wind load requirements of the Florida Building Code, as related to Rule 9B-72.
- System Limitations:** The required design wind loads shall be determined for each project per FBC, 2007, Section 1603.1.4. Any rational analysis shall be prepared by a qualified design professional and in compliance with FBC 2007, Sections 104, 105, 106. The maximum fastener spacing listed herein shall not be exceeded. This product is not approved for use in the High Velocity Hurricane Zone.



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**Referenced Data:**

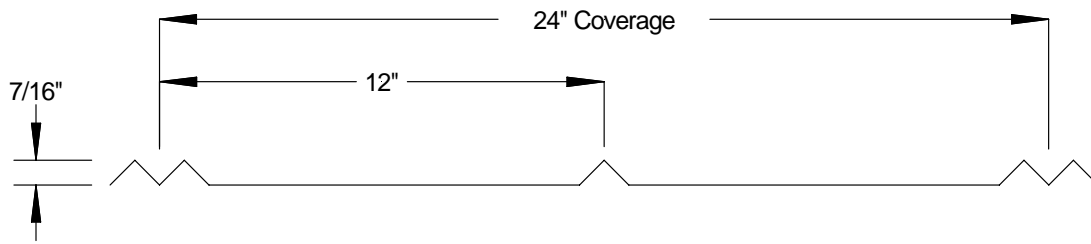
1. UL580-94 & UL 1897-98 Uplift Test  
By Hurricane Test Laboratory, LLC (FBC Organization #TST ID: 1527)  
Report #: 0232-0910-05, Report Date: 11/18/05  
Specimen #1
2. Quality Assurance  
By Keystone Certifications, Inc., (FBC Organization #QUA ID:1824)  
Millennium Metals Licensee # 423
3. Certification of Independence  
By James L. Buckner, P.E. @ C-Buck Engineering  
(FBC Organization # ANE 1916)
4. Engineering Calculations  
By C-Buck Engineering
  - Report #C08-135, Dated: 3/20/08

# CBUCK Engineering

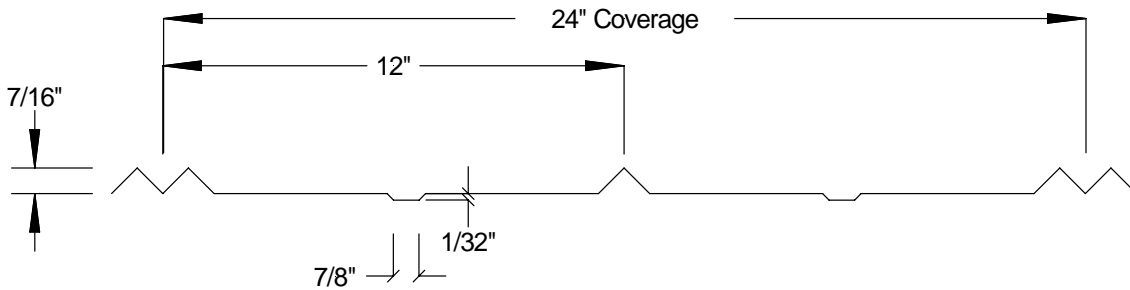
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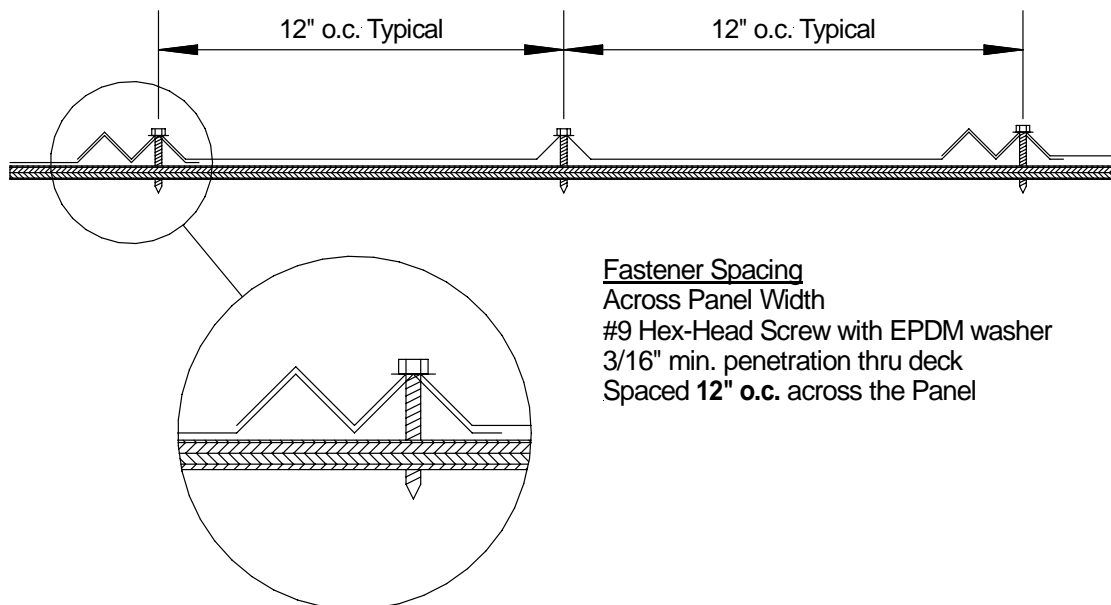
## Installation Method Millennium Metals, Inc. "5V-Crimp" & "Millennium-V" (26 Ga. Steel) Attached to 1/2" Wood Deck



"5V-Crimp" Typical Panel Profile View



"Millennium-V" Typical Panel Profile View



Fastener Spacing  
Across Panel Width  
#9 Hex-Head Screw with EPDM washer  
3/16" min. penetration thru deck  
Spaced 12" o.c. across the Panel

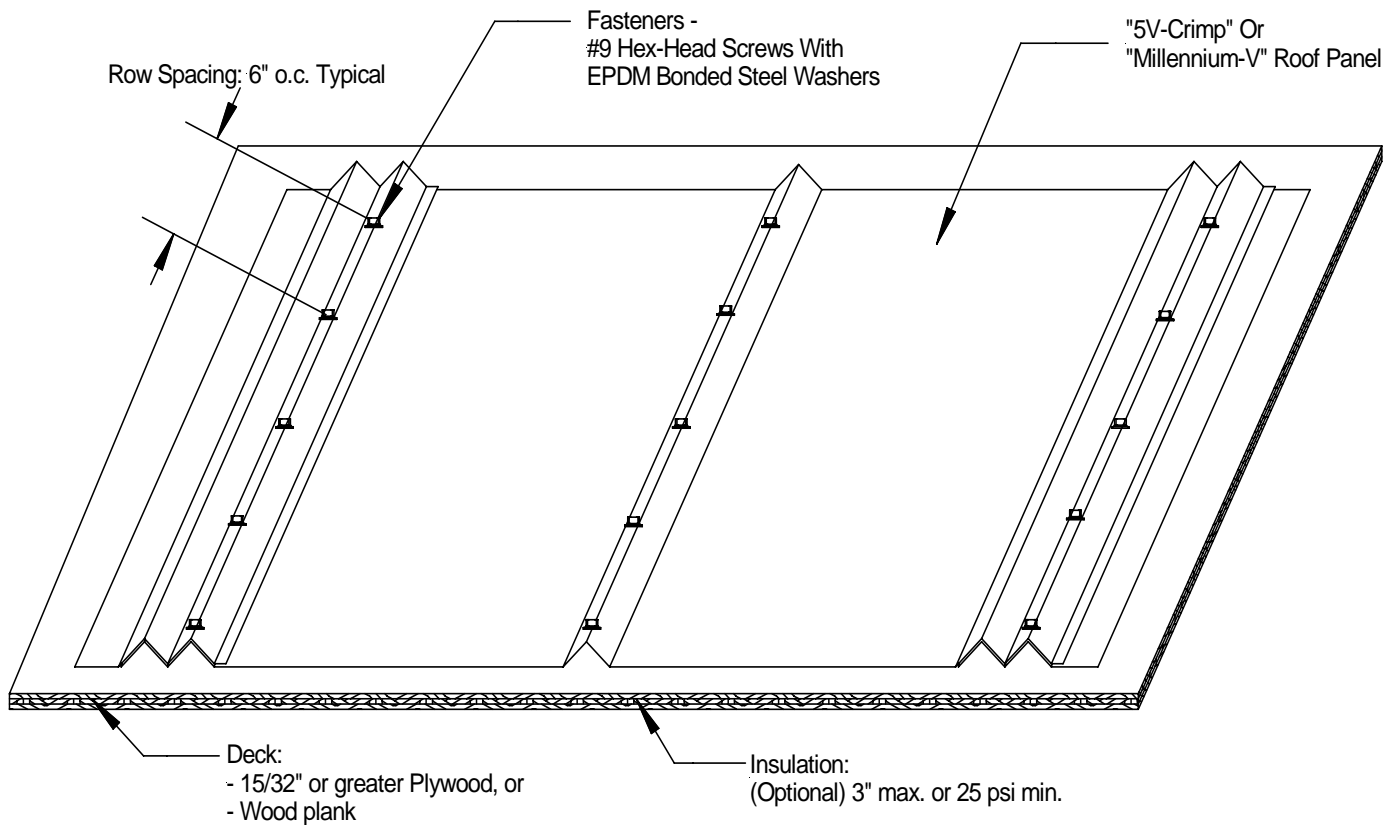
Typical Assembly Profile View

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## Installation Method Millennium Metals, Inc. "5V-Crimp" & "Millennium-V" (26 Ga. Steel) Attached to 1/2" Wood Deck



Typical Assembly Isometric View