



EXTERIOR RESEARCH & DESIGN, LLC.

Certificate of Authorization #9503

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EVALUATION REPORT

Firestone Building Products Company, LLC.

250 West 96th Street

Indianapolis, IN 46260

(615) 937-7017

Evaluation Report F10060.05.08-R8

FL13629-R5

Date of Issuance: 05/13/2008

Revision 8: 10/05/2017

SCOPE:

This Evaluation Report is issued under **Rule 61G20-3** and the applicable rules and regulations governing the use of construction materials in the State of Florida. The documentation submitted has been reviewed by Robert Nieminen, P.E. for use of the product under the Florida Building Code. The product described herein has been evaluated for compliance with the **6th Edition (2017) Florida Building Code** sections noted herein.

DESCRIPTION: UNA-CLAD™ Non-Structural Metal Roof Systems

LABELING: Labeling shall be in accordance with the requirements the Accredited Quality Assurance Agency noted herein.

CONTINUED COMPLIANCE: This Evaluation Report is valid until such time as the named product(s) changes, the referenced Quality Assurance documentation changes, or provisions of the Code that relate to the product change. Acceptance of this Evaluation Report by the named client constitutes agreement to notify Robert Nieminen, P.E. if the product changes or the referenced Quality Assurance documentation changes. Trinity|ERD requires a complete review of this Evaluation Report relative to updated Code requirements with each Code Cycle.

ADVERTISEMENT: The Evaluation Report number preceded by the words “Trinity|ERD Evaluated” may be displayed in advertising literature. If any portion of the Evaluation Report is displayed, then it shall be done in its entirety.

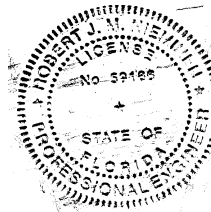
INSPECTION: Upon request, a copy of this entire Evaluation Report shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This Evaluation Report consists of pages 1 through 6, plus a 20-page Appendix.

Prepared by:

Robert J.M. Nieminen, P.E.

Florida Registration No. 59166, Florida DCA ANE1983



The facsimile seal appearing was authorized by Robert Nieminen, P.E. on 10/05/2017. This does not serve as an electronically signed document.

CERTIFICATION OF INDEPENDENCE:

1. Exterior Research & Design, LLC. d/b/a Trinity | ERD does not have, nor does it intend to acquire or will it acquire, a financial interest in any company manufacturing or distributing products it evaluates.
2. Exterior Research & Design, LLC. d/b/a Trinity | ERD is not owned, operated or controlled by any company manufacturing or distributing products it evaluates.
3. Robert Nieminen, P.E. does not have nor will acquire, a financial interest in any company manufacturing or distributing products for which the evaluation reports are being issued.
4. Robert Nieminen, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.
5. This is a building code evaluation. Neither Trinity|ERD nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.

ROOFING SYSTEMS EVALUATION:

1. SCOPE:

Product Category: Roofing
Sub-Category: Non-Structural Metal Roofing
Compliance Statement: **UNA-CLAD™ Non-Structural Metal Roof Systems**, as produced by **Firestone Building Products Company, LLC.**, have demonstrated compliance with the following sections of the **6th Edition (2017) Florida Building Code** through testing in accordance with the following Standards. Compliance is subject to the Installation Requirements and Limitations / Conditions of Use set forth herein.

2. STANDARDS:

<u>Section</u>	<u>Property</u>	<u>Standard</u>	<u>Year</u>
1504.3.2	Wind	UL 580	2006
1504.3.2	Wind	TAS 125	2003

3. REFERENCES:

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
ATI (TST1527)	TAS 125	C7247.01-450-18	05/22/2013
ATI (TST1527)	TAS 125	C7712.01-450-18	09/11/2013
HTL (TST1527)	TAS 125	0182-0102-00	02/01/2000
HTL (TST1527)	TAS 125	0227-0603-00	06/01/2000
HTL (TST1527)	TAS 125	0227-0518-04	10/24/2000
HTL (TST1527)	TAS 125	0227-0706-04	10/24/2000
HTL (TST1527)	TAS 125	0182-0818-01	09/01/2001
HTL (TST1527)	TAS 125	0227-0116-04	03/31/2004
HTL (TST1527)	TAS 125	0227-0226-04	06/29/2004
HTL (TST1527)	TAS 125	0277-0613-04	06/30/2004
HTL (TST1527)	TAS 125	0227-1115-04	11/22/2004
HTL (TST1527)	TAS 125	0227-0517-04	01/14/2005
HTL (TST1527)	TAS 125	0227-0903-04	01/14/2005
HTL (TST1527)	TAS 125	0227-1026-04	01/14/2005
HTL (TST1527)	TAS 125	0155-1115-04	02/25/2005
HTL (TST1527)	TAS 125	0227-0302-05	03/15/2005
HTL (TST1527)	TAS 125	0277-0509-05	06/17/2005
HTL (TST1527)	TAS 125	0277-0608-05	07/05/2005
HTL (TST1527)	TAS 125	0277-0620-05	08/08/2005
HTL (TST1527)	TAS 125	0227-0823-05	11/11/2005
HTL (TST1527)	TAS 125	0227-1207-05	04/20/2006
PRI (TST5878)	UL 580 / TAS 125	FBP-219-02-01	01/28/2015
PRI (TST5878)	UL 580 / TAS 125	FBP-226-02-01	03/19/2015
PRI (TST5878)	UL 580 / TAS 125	FBP-229-02-01	03/20/2015
PRI (TST5878)	UL 580 / TAS 125	FBP-232-02-01	04/02/2015
PRI (TST5878)	UL 580 / TAS 125	FBP-238-02-02	05/27/2015
PRI (TST5878)	UL 580 / TAS 125	FBP-238-02-04	07/15/2015
PRI (TST5878)	UL 580 / TAS 125	FBP-258-02-01	08/24/2015
PRI (TST5878)	UL 580 / TAS 125	FBP-260-02-03	11/19/2015
PRI (TST5878)	UL 580 / TAS 125	FBP-299-02-01	08/04/2016
PRI (TST5878)	UL 580 / TAS 125	FBP-292-02-01	08/10/2016
PRI (TST5878)	UL 580 / TAS 125	FBP-292-02-03	09/30/2016
PRI (TST5878)	UL 580 / TAS 125	FBP-321-02-02	01/06/2017
UL (TST1740)	UL 580	TGKX.376	12/09/1997
UL (TST1740)	UL 580	TGKX.377	12/09/1997
UL (TST1740)	UL 580	TGKX.399	12/09/1997
UL (TST1740)	UL 580	TGKX.512/512A	03/03/1999
UL (TST1740)	UL 580	TGKX.513/513A	03/05/1999

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
UL (TST1740)	UL 580	TGKX.511/511A	03/11/1999
UL (TST1740)	UL 580	TGKX.510/510A	12/03/1999
UL (TST1740)	UL 580	TGKX.629	05/26/2005
UL (TST1740)	UL 580	TGKX.622	04/28/2005
UL (TST1740)	UL 580	TGKX.623	04/28/2005
UL (TST1740)	UL 580	TGKX.624	04/28/2005
UL (TST1740)	UL 580	TGKX.303	03/11/2008
UL (TST1740)	UL 580	TGKX.342	03/11/2008
UL (TST1740)	UL 580	TGKX.343	03/11/2008
UL (TST1740)	UL 580	TGKX.414	03/11/2008
UL (TST1740)	UL 580	TGKX.436	03/11/2008
UL (TST1740)	UL 580	TGKX.448	03/11/2008
UL (TST1740)	UL 580	TGKX.486	03/11/2008
UL (TST1740)	UL 580	TGKX.508	03/11/2008
UL (TST1740)	UL 580	TGKX.508A	03/11/2008
UL (TST1740)	UL 580	TGKX.544	03/11/2008
UL (TST1740)	UL 580	TGKX.656	03/26/2009
UL (TST1740)	UL 580	TGKX.657	03/26/2009
UL (TST1740)	UL 580	TGKX.660	07/09/2009
UL (TST1740)	UL 580	TGKX.653	08/04/2009
UL (TST1740)	UL 580	TGKX.652	11/20/2009
UL (TST1740)	UL 580	TGKX.658	11/20/2009
UL (TST1740)	UL 580	TGKX.664	12/08/2009
UL (TST1740)	UL 580	TGKX.663	12/16/2009
UL (TST1740)	UL 580	TGKX.655	02/04/2010
UL (TST1740)	UL 580	TGIK.R14751	05/26/2005
UL (TST1740)	UL 580 / TAS 125	07NK19743	08/06/2008
UL (TST1740)	UL 580 / TAS 125	08NK19743	01/20/2009
UL LLC (QUA9625)	Quality Control	R14751, Service Confirmation	Exp. 09/11/2020

4. PRODUCT DESCRIPTION:

The following non-structural metal roof panels are mechanically attached to Approved substrate, as outlined in the Limitations / Conditions of Use herein.

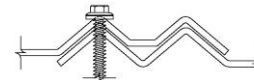
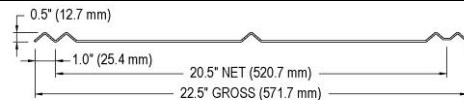
UNA-CLAD™ 5V-CRIMP Roofing Panel is a roll formed, through-fastened metal roof panel.

Steel

Material: Kynar™ coated G-90 Galvanized Steel

Thickness: min. 26 ga. (0.019-inch)

Minimum Yield: 33-45 KSI



UNA-CLAD™ UC-3 Roofing Panel is a factory formed double-lock, architectural standing seam metal roof panel that provides a traditional look and utilizes mechanical seaming. An optional thermally-applied pre-assembly in-seam sealant is available.

Steel

Material: Kynar™ coated G-90 Galvanized Steel
Thickness: min. 24 ga. (0.025-inch)
Minimum Yield: 33-52 KSI

Aluminum

Material: Anodized or Unfinished Aluminum
Thickness: min. 0.040-inch
Minimum Yield: 21-27 KSI

Copper

Material: AGSC Natural or PatriotGreen™/FreedomGray™ Finished Copper
Thickness: 16 oz. (0.022-inch)
Alloy: Min. 99.9% Cu (Ag counting as Cu); cold rolled from 122 alloy ingots

Zinc

Material: RHEINZINK® Shiny, Preweathered Blue-Gray or Graphite Gray Zinc
Thickness: min. 0.028-inch
Alloy: Zinc Titanium Copper Alloy



UNA-CLAD™ UC-4 Roofing Panel is a self-locking, architectural standing seam metal roof panel that does not utilize clips. The 1½-inch high panel seams snap together. No mechanical seaming tools or clips required. An optional thermally-applied pre-assembly in-seam sealant is available.

Steel

Material: Kynar™ coated G-90 Galvanized Steel
Thickness: min. 26 ga. (0.019-inch)
Minimum Yield: 33-50 KSI

Aluminum

Material: Anodized or Unfinished Aluminum
Thickness: min. 0.032-inch
Minimum Yield: 21 KSI

Copper

Material: AGSC Natural or PatriotGreen™/FreedomGray™ Finished Copper
Thickness: 16 oz. (0.022-inch)
Alloy: Min. 99.9% Cu (Ag counting as Cu); cold rolled from 122 alloy ingots



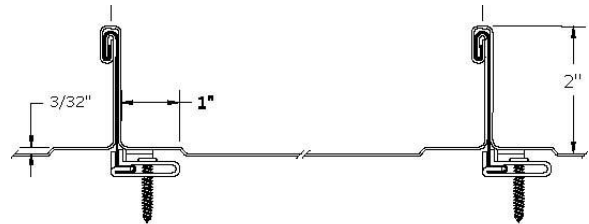
UNA-CLAD™ UC-6 Roofing Panels is factory formed, double-lock, architectural standing seam metal roof panels with concealed clips.

Steel

Material: Kynar™ coated G-90 Galvanized Steel
Thickness: min. 24 ga. (0.025-inch)
Minimum Yield: 33-50 KSI

Aluminum

Material: Anodized or Unfinished Aluminum
Thickness: min. 0.032-inch
Minimum Yield: 21 KSI



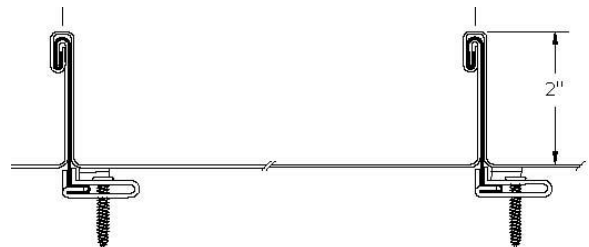
UNA-CLAD™ UC-6 HD Roofing Panels is factory formed, double-lock, architectural standing seam metal roof panel with concealed clips.

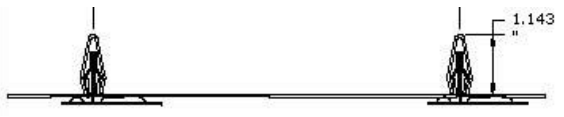
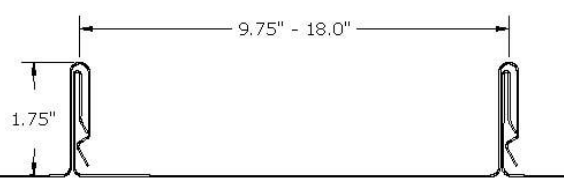
Steel

Material: Kynar™ coated G-90 Galvanized Steel
Thickness: min. 24 ga. (0.025-inch)
Minimum Yield: 33-51 KSI

Aluminum

Material: Anodized or Unfinished Aluminum
Thickness: min. 0.032-inch
Minimum Yield: 21 KSI



<p>UNA-CLAD™ UC-7 Roofing Panel is a factory formed, snap-on batten, standing seam metal.</p>	<p>Steel Material: Kynar™ coated G-90 Galvanized Steel Thickness: min. 24 ga. (0.025-inch) Minimum Yield: 33-45 KSI</p>	
<p>UNA-CLAD™ UC-14 Roofing Panel is a factory formed continuous interlocking, concealed clip, architectural standing seam metal roof panel.</p>	<p>Steel Material: Kynar™ coated G-90 Galvanized Steel Thickness: min. 24 ga. (0.025-inch) Minimum Yield: 33-57 KSI Aluminum Material: Anodized or Unfinished Aluminum Thickness: min. 0.032-inch Minimum Yield: 21 KSI</p>	

5. LIMITATIONS:

- 5.1 This is a building code evaluation. Neither Trinity|ERD nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.
- 5.2 This evaluation report is not for use in FBC HVHZ jurisdictions.
- 5.3 Fire classifications are not part of this Evaluation Report. Refer to a current Roofing Materials Directory for fire ratings of this product.
- 5.4 The minimum **Firestone**-recommended slope for 5V-Crimp is 5:12 without applied lap sealant and 3:12 with applied lap sealant. The minimum **Firestone**-recommended slope for standing seam is 3:12. Contact the **Firestone** technical support services for slope conditions below these recommendations. Slope shall not be less than that set forth in **FBC 1507.4.2**.
- 5.5 Sheet materials used to produce the panels shall comply with **FBC 1507.4.3**.
- 5.6 This evaluation is limited to the roof panel and its connecting clips. The structural adequacy of all structural components (beams, columns, purlins and roof deck etc.) shall be verified to the satisfaction of the Authority Having Jurisdiction.
- 5.7 Appendix 1 outlines attachment requirements for design wind pressure resistance. "MDP" = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads. Refer to **FBC 1609** for determination of design wind pressures.
 - 5.7.1 The maximum clip and/or fastener spacing and associated maximum design pressure for the selected assembly shall meet or exceed those determined in accordance with **FBC 1609** for all pressure zones. Interpolation between clip-spacing by a qualified design professional is permitted. The maximum listed clip and/or fastener spacing shall not be exceeded.
- 5.8 For existing roof decks, fasteners shall be tested in the existing deck for withdrawal resistance in accordance with **ANSI/SPRI FX-1** or **Testing Application Standard TAS 105**. A qualified design professional shall review the data for comparison to the minimum requirements for the system.
- 5.9 All products in the roof assembly shall have quality assurance audit in accordance with **F.A.C. Rule 61G20-3**.

6. INSTALLATION:

- 6.1 **UNA-CLAD™ Non-Structural Metal Roofing Systems** shall be installed in accordance with **Firestone Building Products Company, LLC.** published installation instructions, subject to the Limitations / Conditions of Use noted below.
- 6.2 System attachment requirements for wind load resistance are set forth in Appendix 1. “MDP” = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads, and reflects the ultimate passing pressure divided by 2 (the 2 to 1 margin of safety per **FBC 1504.9** has already been applied). Refer to **FBC 1609** for determination of design wind pressures.

7. BUILDING PERMIT REQUIREMENTS:

As required by the Building Official or Authority Having Jurisdiction in order to properly evaluate the installation of this product.

8. MANUFACTURING PLANTS:

Anoka, MN

9. QUALITY ASSURANCE ENTITY:

UL LLC – QUA9625; (631)546-2458, Kanchi.Agrawala-Dokania@ul.com

- THE 20-PAGES THAT FOLLOW FORM PART OF THIS EVALUATION REPORT -