

Evaluation Report "Englert® Series 2000" Metal Roof Assembly

Manufacturer:

Englert, Inc.

1200 Amboy Avenue
Perth Amboy, NJ 08862
(732) 826-8614

for

Florida Product Approval

FL 11751.4 R5

Florida Building Code 6th Edition (2017)

Method: 1 - D

Category: Roofing

Sub - Category: Metal Roofing

Product: "Series 2000" Roof Panel

Material: Aluminum

Panel Thickness: 0.040"

Panel Width: 18"

Panel Seam: Snap-Lock

Support: Wood Deck

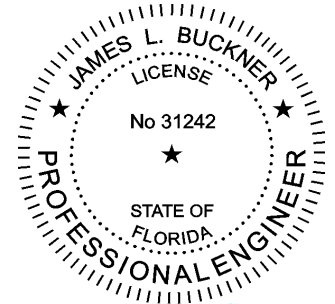
Prepared by:

James L. Buckner, P.E., SECB
Florida Professional Engineer # 31242
Florida Evaluation ANE ID: 1916
Project Manager: Diana Galloway
Report No. 17-135-S2000-A4W-ER
(Revises 16-122-S2000-A4W-ER, FL11751.4 R4)
Date: 9 / 16 / 17

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Facsimile of digital copy signed by
James L. Buckner, P.E.
Electronically signed and sealed documents shall
comply with the provisions of FAC Rule 61G15-23.



A handwritten signature in blue ink, appearing to read "James L. Buckner".

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| | |
|---------------------------------------|---|
| Manufacturer: | Englert, Inc. 1200 Amboy Avenue Perth Amboy, NJ 08862 (732) 826-8614 http://www.englertinc.com/ |
| Product Name: | "Series 2000" |
| Product Category: | Roofing |
| Product Sub-Category | Metal Roofing |
| Compliance Method: | State Product Approval Rule 61G20-3.005 (1) (d) |
| Product/System Description: | "Series 2000" Roof Panel 0.040" Aluminum Snap-Lock roof panel mechanically attached to Wood Deck with fixed panel clips & screws. |
| Product Assembly as Evaluated: | Refer to Page 4 of this report for product assembly components/materials & standards: <ol style="list-style-type: none">1. Roof Panel2. Panel Clip3. Fasteners4. Underlayment5. Insulation (Optional) |
| Support: | Type: Wood Deck (Design of support and its attachment to support framing is outside the scope of this evaluation.) Description: <ul style="list-style-type: none">• 19/32" or greater plywood,• or Wood plank (min. specific gravity of 0.42) |
| Slope: | Minimum slope shall be: 3 : 12 or greater In compliance with FBC Chapter 15 based on the type of roof covering, applicable code sections and in accordance with manufacturer's recommendations. |
| Performance: | Wind Uplift Resistance: <ul style="list-style-type: none">• Design Uplift Pressure: Refer to Table A (Refer to "Table A" attachment details herein) |

Performance

Standards:

The product described herein has demonstrated compliance with:

- UL580-06 – *Test for Uplift Resistance of Roof Assemblies*
- UL 1897-12 – *Uplift test for roof covering systems*
- TAS 125-03 – *Standard Requirements for Metal Roofing 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 1897-12 adopted by the Florida Building Code 6th Edition (2017).

Code Compliance:

The product(s) described herein have demonstrated compliance with the performance standards listed above as referenced in the current Florida Building Code.

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 61G20-3.001.

Limitations and

Conditions of Use:

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

Option for application outside “Limitations and Conditions of Use”

- Rule 61G20-3.005(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.
- This report is a building code product evaluation per FLPE rule (FAC) 61G15-36 to comply with Florida product approval rule (FAC) 61G20-3. This evaluation report is part of the Florida Building Commission approval for the listed code related criteria. This report by James Buckner, P.E. and CBUGK Engineering is not a design certification of code compliance construction submittal documentation, per FBC section 107, for any individual structure, site specific or permit design.
- Deck shall be in compliance with applicable building code.
- Design of support system is outside the scope of this report.
- Fire Classification is outside the scope of Rule 61G20-3, 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 61G20-3.0005 (3) for manufacturing under a quality assurance program audited by an approved quality assurance entity through Keystone Certifications, Inc. (FBC Organization ID# QUA 1824).

**Components/Materials
(by Manufacturer):**

Roof Panel:
Material: Englert Series 2000
Aluminum
Thickness: 0.040" (min.)
Panel Widths: 18" (max.) Coverage
Rib Height: 1-3/4"
Alloy Type: 3105 H14
Corrosion Resistance: Per FBC Section 1507.4.3

Roof Panel Clips:

Product Name: Englert "Series 2000 Clip"
Englert Part #: 05076B
Type: One-piece, fixed clip
Material: Galvanized Steel
Thickness: 18 gauge
Yield Strength: 40 ksi min.
Dimensions: 1-3/4" (tall) x 3-1/2" (long) x 2-1/2" (wide)
Corrosion Resistance: Per FBC Section 1506.7

Fastener:

Type: Pancake-Head Wood Screw
Size : #10 x 1"
Corrosion Resistance: Per FBC Section 1506.6 and 1507.4.4
Standard: Per ANSI/ASME B18.6.1

**Components &
Materials:
(by Others)**

Underlayment:

Material and application shall be in compliance with FBC Section 1507.1.1 and in accordance with applicable code sections and manufacturer's recommendations.

Insulation (Optional):

Type: Rigid Insulation Board
Thickness: 3" (max.)
Properties:
Density: 2.25 pcf (lbs/ft³) min.
Or Compressive Strength: 20 psi min.

Insulation Notes:

- Rigid Insulation shall meet minimum density OR compressive strength.
- 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".

Installation:

Installation Method:

(Refer to "TABLE A" below and drawings at the end of this evaluation report.)

- Clip Spacing: **Refer to "TABLE A" Below**
(along the length of the panel)
- Two (2) fasteners per Clip
- Rib Interlock: Snap-Lock
(Panel ribs shall be fully engaged to form an integral snap-lock.)
- Minimum fastener penetration thru bottom of support, 3/16".
- For panel construction at the end of panels, refer to manufacturer's instructions and any site specific design.

| TABLE "A" ALLOWABLE LOADS | | | | | | | | |
|---|--------------------|-----------------------|--------------|---------------------|-------------------------|---------------|-------------------|-----------------------|
| "Series 2000" (.040" Alum.) Roof Panel attached to Wood Deck | | | | | | | | |
| | Panel Width (max.) | Deck Thickness (min.) | Panel Clip | Clip Spacing (max.) | # of Fasteners per Clip | Seam Adhesive | Panel Seam (min.) | Design Pressure (ASD) |
| 1 | 18" | 19/32" | 3-1/2" Fixed | 24" | 2 | NO | SnapLock | - 70 PSF |
| 2 | 18" | 19/32" | 3-1/2" Fixed | 8" | 2 | NO | SnapLock | - 150 PSF |
| Note: Allowable design pressure(s) for allowable stress design (ASD). | | | | | | | | |

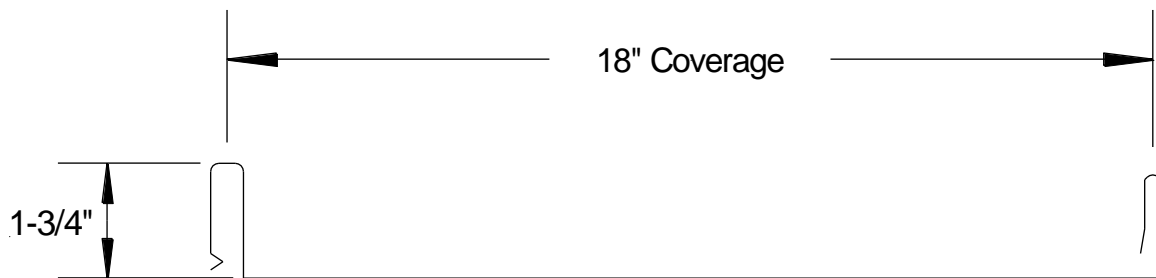
Install the "Series 2000" roof panel assembly in compliance with the installation method listed in this report and applicable code sections of FBC 6th Edition (2017). The installation method described herein is in accordance with the scope of this evaluation report. Refer to manufacturer's installation instructions as a supplemental guide for attachment.

Referenced Data:

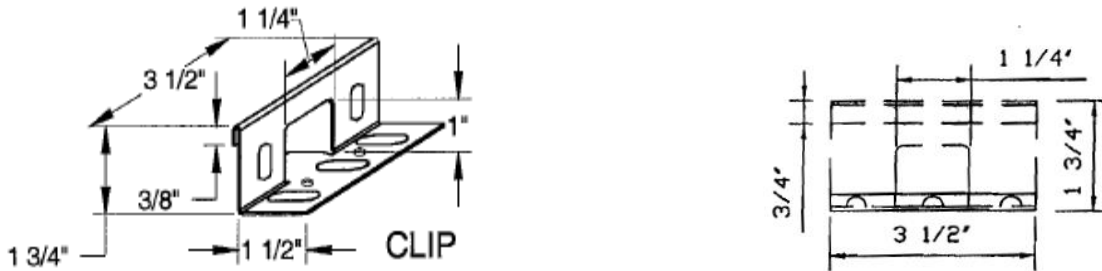
1. TAS 125 Uplift Test
By Architectural Testing, Inc. (FBC Organization ID# TST 1558)
Report No. 01-46070.02, Specimen #1-3, Date: 10/23/03 (#1)
2. TAS 125 Uplift Test
By Intertek/Architectural Testing, Inc. (FBC Organization ID# TST 1558)
Report No. E6210.01-109-18-r1, Spec #1, Date: 6/29/15 (#2)
3. Keystone Certifications, Inc. (FBC Organization ID# QUA 1824)
Englert, Inc. Licensee #420
4. Equivalency of Test Standard Certification
By James L. Buckner, P.E. @ CBUCK Engineering
(FBC Organization # ANE 1916)
5. Certification of Independence
By James L. Buckner, P.E. @ CBUCK Engineering
(FBC Organization # ANE 1916)

**Installation Method
Englert, Inc.
"Series 2000" (0.040" Aluminum) Roof Panel attached to Wood Deck**

Drawings



Typical Panel Profile

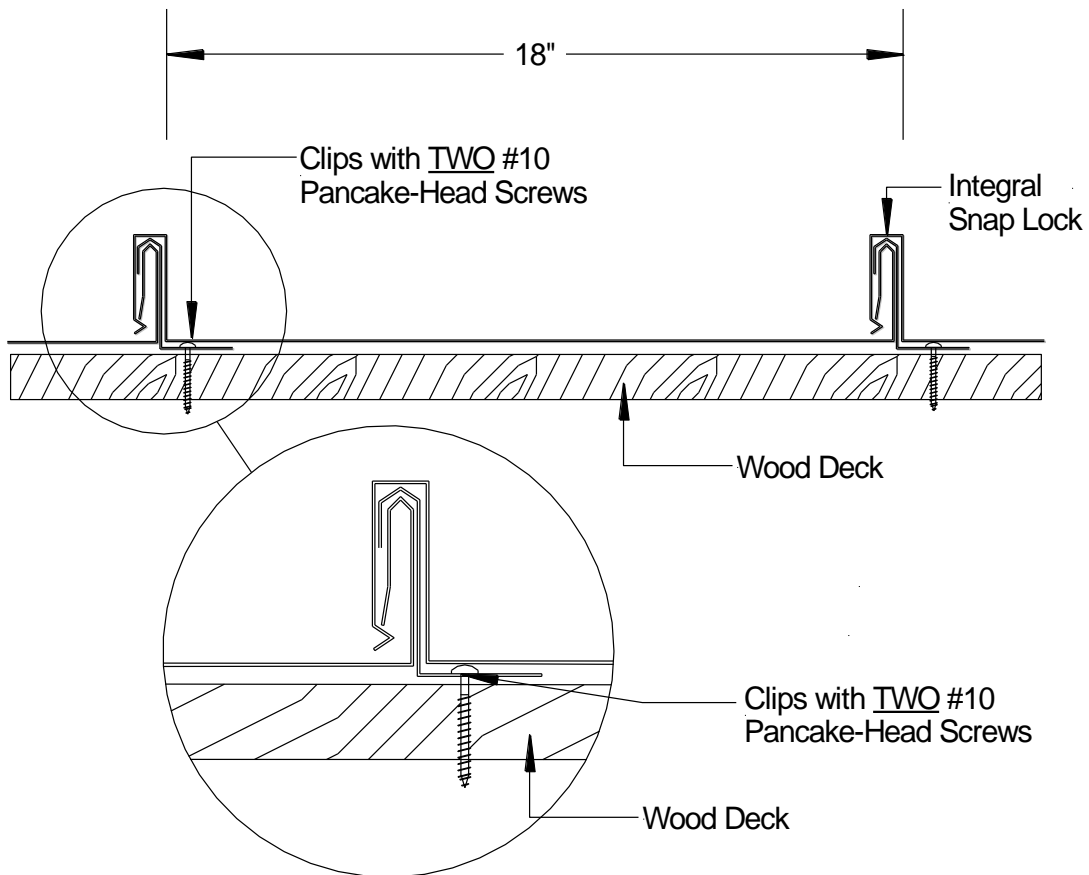


**Panel Clip Profile
Englert "Series 2000 Clip"
(Part # 05076B)**

Installation Method

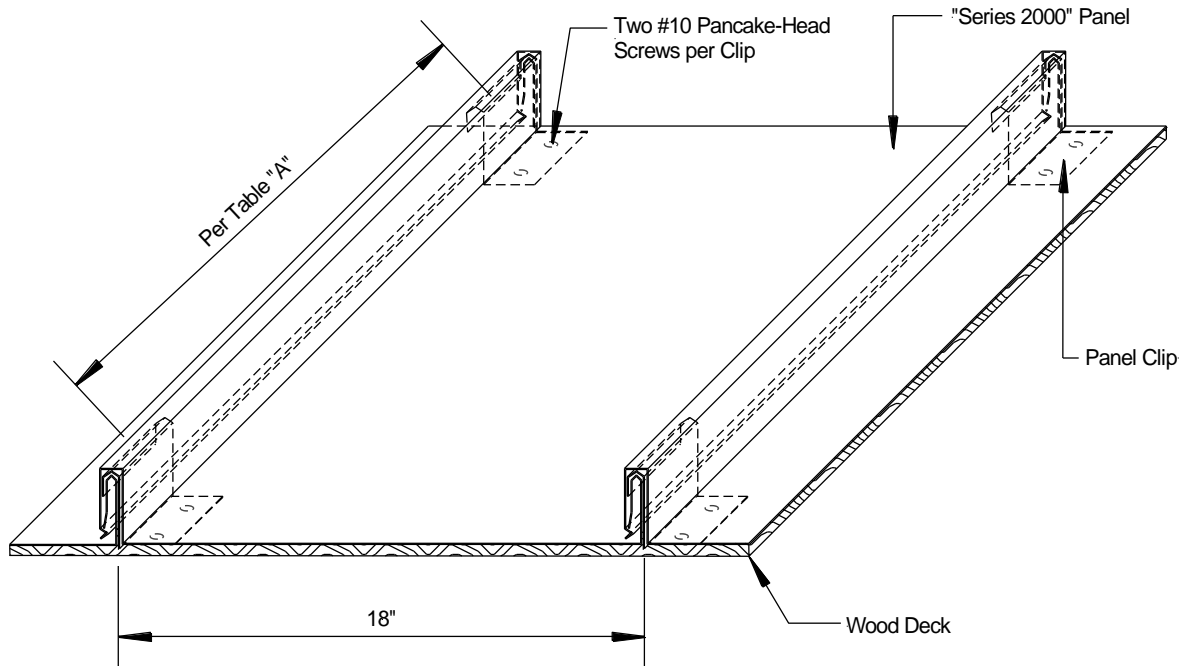
Englert, Inc.

“Series 2000” (0.040” Aluminum) Roof Panel attached to Wood Deck



**Typical Assembly Profile View
(Typical Fastening Pattern Across Width)**

Installation Method Englert, Inc. "Series 2000" (0.040" Aluminum) Roof Panel attached to Wood Deck



**Typical Roof Assembly
Isometric View**

(Optional) Rigid Insulation Board per Page 4 of this report

| TABLE "A" ALLOWABLE LOADS "Series 2000" (.040" Alum.) Roof Panel attached to Wood Deck | | | | | | | | |
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| | Panel Width (max.) | Deck Thickness (min.) | Panel Clip | Clip Spacing (max.) | # of Fasteners per Clip | Seam Adhesive | Panel Seam (min.) | Design Pressure (ASD) |
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| 2 | 18" | 19/32" | 3-1/2" Fixed | 8" | 2 | NO | SnapLock | - 150 PSF |

Note: Allowable design pressure(s) for allowable stress design (ASD).