

TEXAS DEPARTMENT OF INSURANCE

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PRODUCT EVALUATION RC-143

Effective December 1, 2012

*The following product has been evaluated for compliance with the wind loads specified in **International Residential Code (IRC)** and the **International Building Code (IBC)**. This product shall be subject to reevaluation **December 2016**.*

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

Mechanical Lock Metal Roof Panels manufactured by

Austin Roofing and Siding, Inc.
225 South Commons Ford Road
Austin, TX 78733
(512) 372-8110

is acceptable in designated catastrophe areas along the Texas Gulf Coast when installed in accordance with the manufacturer's installation instructions and this product evaluation.

PRODUCT DESCRIPTION

Mechanical Lock roof panels are formed metal panels. The formed metal roof panels are secured with panel clips that are attached to the roof deck with fasteners.

This product evaluation report covers the following Mechanical Lock metal roof panels:

System	Product	Product Description
1	1" Mechanical Lock Panel	17" wide panels; 1" tall ribs; Double Lock; 24 Ga. (0.0225") steel panel thickness conforming to ASTM A792 Grade 50.
2	1.5" Mechanical Lock Aluminum Panel	20" wide panels; 1.5" tall ribs; Double Lock; 0.032" aluminum conforming to ASTM B209
3	1.5" Mechanical Lock; 24 Ga. Steel Panel	16" wide panels; 1.5" tall ribs; Double Lock; 24 Ga. (0.0225") steel panel thickness conforming to ASTM A792, Grade 50.
4	1.5" Mechanical Lock 16 oz. Copper Panel	16" wide panels; 1.5" tall ribs; Double Lock; 16 oz (0.022") copper

LIMITATIONS

Roof Deck: The roof deck shall be solidly sheathed. The minimum required thickness of the deck shall be $\frac{19}{32}$ " plywood panels. All joints are to be sealed with one part urethane sealant feathered out from the joints.

LIMITATIONS (Continued)

Roof Deck Attachment: The roof deck shall be secured to the roof framing to resist the required wind uplift design pressures.

Design Wind Pressures: The Mechanical Lock roof panels, when installed in accordance with this evaluation report, have the following allowable wind uplift pressures:

System	Product	Allowable Wind Pressure (psf)
1	1" Mechanical Lock Panel	-107.5
2	1.5" Mechanical Lock Aluminum Panel	-72.5
3	1.5" Mechanical Lock; 24 Ga. Steel Panel	-52.5
4	1.5" Mechanical Lock 16 oz. Copper Panel	-122.5

Installation Over an Existing Roof Covering: Installation over an existing roof covering is limited to a maximum of one existing layer of composition shingles, wood shingles or shakes, built-up roofing, or roll roofing. The minimum thickness of the existing roof deck shall be as required for a new roof panel installation. Note: Inspection of the existing roof deck must be made before installing the roof panels. The condition of the existing roof deck must be acceptable to receive the roof panels before the roof panel installation can proceed. Note: A new underlayment installation is not required when installing panels over an existing roof covering.

Roof Slope: The metal roof panels shall not be installed on roofs with a roof slope less than 2:12 or a roof slope greater than 12:12.

INSTALLATION INSTRUCTIONS

General Installation Requirements:

The Mechanical Lock metal roof panel shall be installed as specified in this evaluation report and as specified in the manufacturer's recommended installation instructions. Refer to the Mechanical Lock Recommended Details, Specifications and Trim document available from the manufacturer for specific installation details.

Roof panels shall overhang the eave as required by the selected eave detail.

Panel Installation Requirements

Panels: Panels shall be attached the roof deck as shown in Table 1:

**Table 1
Fastener Type, Quantity, and Spacing**

System	Product	Fastener Type and Quantity per Clip	Clip Type and Spacing
1	1" Mechanical Lock Panel	Two (2) #10-12 x 1"	"1000FC" @ 24" o.c.
2	1.5" Mechanical Lock Aluminum Panel	Two (2) #14-13 x 1 5/8"	"1500SC" @ 36" o.c.
3	1.5" Mechanical Lock; 24 Ga. Steel Panel	Two (2) #14-13 x 1 5/8"	"1500SC" @ 36" o.c.
4	1.5" Mechanical Lock 16 oz. Copper Panel	Two (2) #14-13 x 1 5/8"	"1500SC" @ 36" o.c.

INSTALLATION INSTRUCTIONS (Continued)

Underlayment: A minimum of one layer of No. 30 (Type II) asphalt felt shall be used. The underlayment used shall comply with one or more of the following: ASTM D 226, ASTM D 4869, or ASTM D 1970. The underlayment shall be installed with minimum 6 inch side laps and minimum 3 inch end laps. The underlayment shall be applied with corrosion-resistant fasteners in accordance with the manufacturer's installation instructions. Fasteners shall be applied along the overlaps not farther apart than 36 inches on center. Note: An optional radiant barrier may be installed beneath the panels in conjunction the underlayment.

Anchorage: The Mechanical Lock roof panels shall be secured using clips that are secured to the roof decking with fasteners. The fastener and clip requirements are in accordance with Table 1.

The "1000FC" standing seam clip is a one part assembly. The clip is a 2" long, 1 1/4" high, 24 gauge steel clip. The clip is placed over the rib of the panel and is fastened to the roof decking with two fasteners that are inserted through the guide holes in the base of the clip.

The "1500SC" clip is a steel sliding clip that is a two-part assembly. The clip has an upper tab that is manufactured from stainless steel. The upper tab is 4 1/4" long, 1 7/8" high, and is 0.030" in thickness. The upper tab is formed to engage the panel rib and the lower portion is formed to engage the base. The base is manufactured of galvanized steel. The base is 1 7/8" wide, 1 5/8" long, and is 0.060" in thickness. It is formed to fold over the bottom of the upper tab with another leg formed to engage the bottom of the upper tab. The two-part clip is placed over the rib of the panel and is fastened to the roof decking with two fasteners that are inserted through the guide holes in the base of the clip.

The fasteners for the clips are manufactured by SFS Intec. If the panels are laid directly over an existing roof covering, then longer fasteners may be required. The fasteners shall be long enough to penetrate completely through the wood structural panels with a minimum exposure of 1/4 inch below the underside of the wood structural panels.

Trim: Trim shall be installed in accordance with the manufacturer's installation instructions. Refer to the Mechanical Lock Recommended Details, Specifications and Trim document available from the manufacturer for specific installation details.

Alternative Fasteners: Substitution of equivalent fasteners shall meet the following requirements:

#10-12 Pancake head Type A screws, manufactured by SFS Intec (Construction Fasteners, Inc.)
Ultimate withdrawal (pullout) \geq 521 lbs. in 1 9/32 inch plywood

#14-13 Truss head screws, manufactured by SFS Intec (Construction Fasteners, Inc.)
Ultimate withdrawal (pullout) \geq 516 lbs. in 1 9/32 inch plywood

Note: A copy of the Mechanical Lock Recommended Details, Specifications and Trim document available from the manufacturer shall be available on the job site during the installation. All fasteners shall be corrosion resistant as specified in the International Residential Code (IRC), the International Building Code (IBC), and the Texas Revisions.