

Product Evaluation

RC606 | 0619

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

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.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: RC-606

Effective Date: June 1, 2019

Re-evaluation Date: April 2023

Product Name: R-Mer Span, R-Mer Loc, and R-Mer Shield Steel and Aluminum Roof Panels
Installed over Steel Purlins

Manufacturer: The Garland Company, Inc.
3800 East 91st Street
Cleveland, OH 44105
(216) 430-3516

General Description:

R-Mer Span is a factory-formed, standing seam metal roof panel with a 2-3/8" high vertical seam. This evaluation report covers 24-gauge and 22-gauge steel and 0.032" to 0.040" aluminum panels of 12", 16" or 18" width.

R-Mer Loc is a factory-formed, standing seam metal roof panel with a 1-3/4" high vertical seam. This evaluation report covers 24-gauge and 22-gauge steel panels of 18" width and 0.032" aluminum panels of 16" width.

R-Mer Shield is a factory formed, standing seam metal roof panel with a 2-1/16" high vertical seam. This evaluation report covers 24-gauge, 22-gauge, and 20-gauge steel and 0.032" to 0.040" aluminum panels of 12.75", 16.75", 18.75" or 24.75" width.

Limitations:

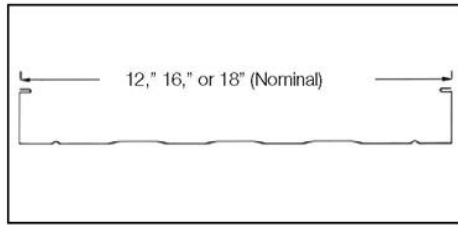
Roof Slope: The minimum Garland-recommended slope for R-Mer Span, R-Mer Loc and R-Mer Shield is 1/4:12, 3:12, and 1/4:12, respectively. The minimum allowable roof slope per building code requirements is 1/4:12.

Span/Wind Load: Span / wind load limitations for the panels are set forth in the tables below. The wind load limitations include a 2 to 1 margin of safety applied to test data, and no-load combinations are considered. This evaluation is limited to the roof panel and its connecting clips. The design professional must determine the appropriate roof cladding design pressure requirements for comparison to the allowable pressures listed below.

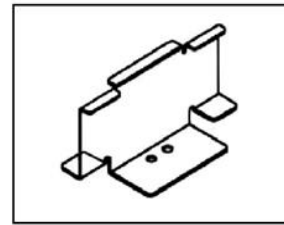
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| R-MER SPAN – ALUMINUM OR STEEL |
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|---------------------------------|--|
| Slope Range: | 1/4:12 or greater |
| Purlins: | Minimum 2-1/2" x 8" x 12-gauge steel purlins. |
| Insulation: | (Optional) Any compressible blanket insulation, 6" max. thickness before compression, or foamed plastic (rigid insulation), 1" to 4" thick. |
| Thermal Spacer: | (Optional) Nominal 1 x 4 wood or 1 x 3 polystyrene strips over purlins. Continuous when blanket insulation exceeds 4" max. thickness before compression. |
| Metal Panels: | 0.032" or 0.040" aluminum panels; maximum 18" wide with 2-3/8" high seams. Panels must be continuous over three or more spans. OR 24-gauge or 22-gauge steel; maximum 18" wide with 2-3/8" high seams. Panels must be continuous over three or more spans. |
| Clips: | 16-gauge coated or stainless-steel clips; 5-3/8" long by 2-5/8" high. |
| Fasteners: | Two 14-13 DP1 fasteners of appropriate length for purlins (minimum penetration of 3 pitches below steel); self-tapping, hex-head, plated or stainless-steel screws without washers per clip. |
| Load / Span Limitations: | Refer to Load/Span Tables 1A & 1B |

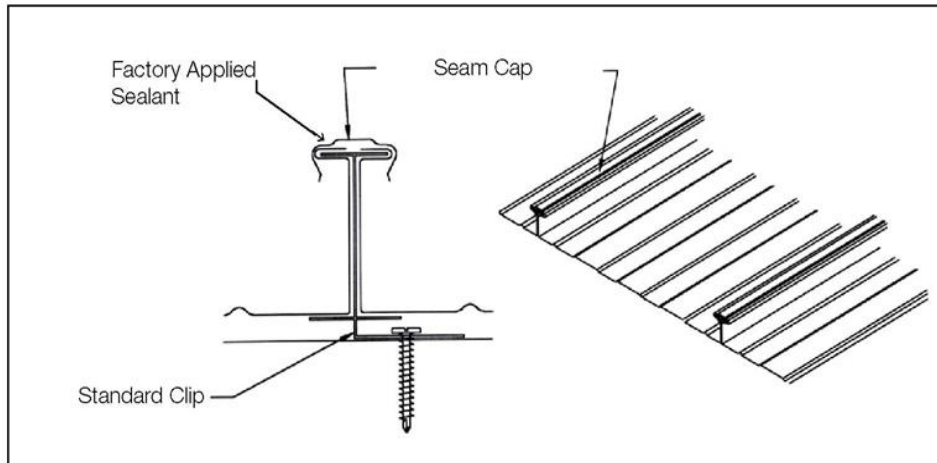
PANEL PROFILE



STANDARD CLIP



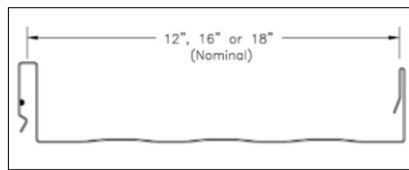
SEAM DETAIL AND ASSEMBLY



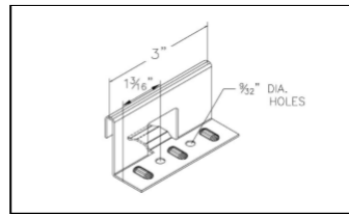
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| R-MER LOC – ALUMINUM OR STEEL |
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|---------------------------------|--|
| Slope Range: | 3:12 or greater |
| Purlins: | Minimum 2-1/2" x 8" x 12-gauge steel purlins. |
| Insulation: | (Optional) Any compressible blanket insulation, 6" max. thickness before compression, or foamed plastic (rigid insulation), 1" to 4" thick. |
| Thermal Spacer: | (Optional) Nominal 1 x 4 wood or 1 x 3 polystyrene strips over purlins. Continuous when blanket insulation exceeds 4" max. thickness before compression. |
| Metal Panels: | 0.032" or 0.040" aluminum panels, maximum 18" wide with 1-3/4" high seams. Panels must be continuous over three or more spans. OR 24-gauge or 22-gauge steel, maximum 18" wide with 1-3/4" high seams. Panels must be continuous over three or more spans. |
| Clips: | 18-gauge coated or stainless-steel clips measuring 3" long by 1-3/4" high. |
| Fasteners: | Two 1/4-14 x 1-1/2" long self-tapping, hex-head, plated or stainless-steel screws without washers per clip. |
| Load / Span Limitations: | See Load/Span Tables 2A & 2B |

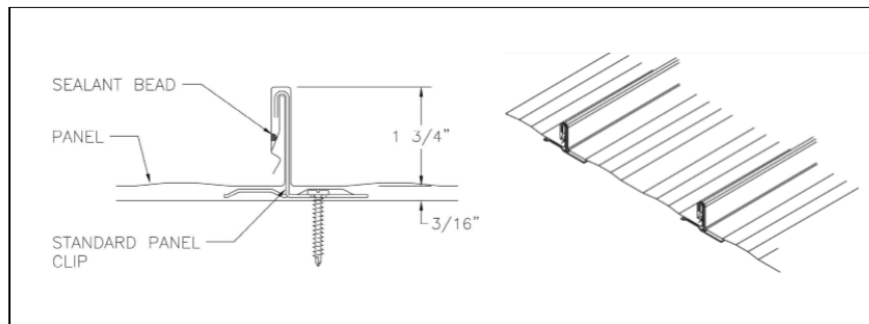
PANEL PROFILE



STANDARD CLIP



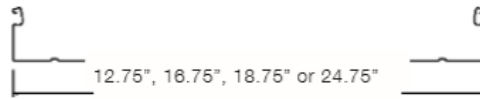
SEAM DETAIL AND ASSEMBLY



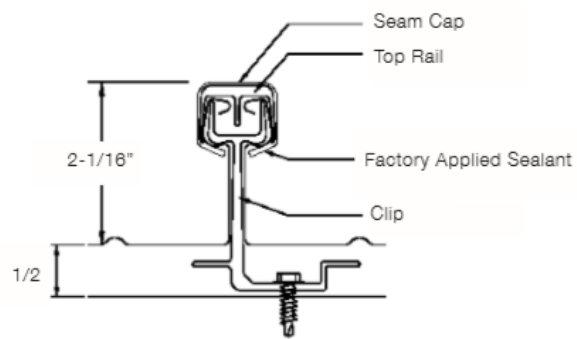
R-MER SHIELD – ALUMINUM OR STEEL

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|---------------------------------|--|
| Slope Range: | 1/4:12 or greater |
| Purlins: | Minimum 2-1/2" x 8" x 12-gauge steel purlins. |
| Insulation: | (Optional) Any compressible blanket insulation, 6" maximum thickness before compression, or foamed plastic (rigid insulation), 1" to 4" thick. |
| Thermal Spacer: | (Optional) Nominal 1 x 4 wood or 1 x 3 polystyrene strips over purlins. Continuous when blanket insulation exceeds 4" maximum thickness before compression. |
| Metal Panels: | 0.032" or 0.040" aluminum panels, maximum 18.75" wide with 2-1/16" high seams. Panels must be continuous over three or more spans. OR 24-gauge or 22-gauge steel, maximum 18.75" wide with 2-1/16" high seams. Panels must be continuous over three or more spans. |
| Clips: | Minimum nominal 0.09" thick extruded aluminum measuring 4" or 6" long by 2-1/2" high. |
| Fasteners: | Two 1/4-14 x 1-1/2" long self-tapping, hex-head, plated or stainless-steel screws without washers per clip. |
| Load / Span Limitations: | See Load/Span Tables 3A & 3B |

PANEL PROFILE



SEAM DETAIL & ASSEMBLY



Installation:

| TABLE 1A: SPAN / WIND LOAD TABLES | | | | | | | | | |
|--|---------------------------|------------------------|-----------------------------|----------|----------|----------|----------|----------|----------|
| R-MER SPAN (ALUMINUM) | | | | | | | | | |
| Roof Panel | Panel Width (inch) | Thickness (ga.) | Span (ft) | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | Allowable Load (psf) | | | | | | |
| R-MER Span RMS18 ISPAN Clip | 18 | 0.040 | N/A | N/A | N/A | N/A | N/A | 65.0 | N/A |
| R-MER Span RMS18 Standard Clip | 18 | 0.040 | 92.5 | 79.4 | 66.3 | 53.2 | 40.1 | N/A | N/A |

| TABLE 1B: SPAN / WIND LOAD TABLES | | | | | | | | | | |
|--|---------------------------|------------------------|-----------------------------|----------|----------|----------|----------|------------|----------|----------|
| R-MER SPAN (STEEL) | | | | | | | | | | |
| Roof Panel | Panel Width (inch) | Thickness (ga.) | Span (ft) | | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 5.5 | 6 | 7 |
| | | | Allowable Load (psf) | | | | | | | |
| R-MER Span RMS18 Standard Clip | 18 | 22 | 91.0 | 77.7 | 64.4 | 51.1 | 37.8 | N/A | N/A | N/A |
| R-MER Span RMS18 ISPAN Clip | 18 | 22 | N/A | N/A | N/A | N/A | N/A | N/A | 77.5 | N/A |
| R-MER Span RMS18 Standard Clip | 18 | 24 | 67.5 | 59.4 | 51.3 | 43.2 | 35.1 | N/A | N/A | N/A |
| R-MER Span RMS18 ISPAN Clip | 18 | 24 | N/A | N/A | N/A | N/A | N/A | N/A | 60.0 | N/A |

| TABLE 2: SPAN / WIND LOAD TABLES | | | | | | | | | |
|---|---------------------------|------------------------|-----------------------------|----------|----------|----------|----------|----------|----------|
| R-MER LOC (STEEL) | | | | | | | | | |
| Roof Panel | Panel Width (inch) | Thickness (ga.) | Span (ft) | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | Allowable Load (psf) | | | | | | |
| R-Mer Loc 18 | 18 | 22 | 36.2 | 34.6 | 32.9 | 31.2 | N/A | N/A | N/A |

| TABLE 3A: SPAN / WIND LOAD TABLES | | | | | | | | | | |
|-----------------------------------|--------------------|--------------------|------------------|----------------------|------|------|------|------|-----|-----|
| R-MER SHIELD (ALUMINUM) | | | | | | | | | | |
| Clips | Roof Panel | Panel Width (inch) | Thickness (inch) | Span (ft) | | | | | | |
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | Allowable Load (psf) | | | | | | |
| STANDARD TOP RAIL | R-Mer Shield 12.75 | 12.75 | 0.040 | 70.5 | 60.4 | 50.3 | 40.1 | 30.0 | N/A | N/A |
| | R-Mer Shield 16.75 | 16.75 | 0.032 | N/A | N/A | N/A | N/A | 32.5 | N/A | N/A |
| | R-Mer Shield 16.75 | 16.75 | 0.040 | 48.0 | 40.9 | 33.8 | N/A | N/A | N/A | N/A |
| | R-Mer Shield 16.75 | 16.75 | 0.050 | 42.0 | N/A | N/A | N/A | N/A | N/A | N/A |
| | R-Mer Shield 18.75 | 18.75 | 0.040 | 42.0 | 36.0 | 30.0 | N/A | N/A | N/A | N/A |
| CONTINUOUS TOP RAIL | R-Mer Shield 12.75 | 12.75 | 0.040 | 60.0 | 51.4 | 42.8 | 34.1 | 30.0 | N/A | N/A |
| | R-Mer Shield 16.75 | 16.75 | 0.050 | 52.5 | N/A | N/A | N/A | N/A | N/A | N/A |
| | R-Mer Shield 18.75 | 18.75 | 0.040 | 52.5 | 45.0 | 37.5 | 30.0 | N/A | N/A | N/A |

| TABLE 3B: SPAN / WIND LOAD TABLES | | | | | | | | | | |
|-----------------------------------|--------------------|--------------------|-----------------|----------------------|------|------|------|------|-----|-----|
| R-MER SHIELD (STEEL) | | | | | | | | | | |
| Clips | Roof Panel | Panel Width (inch) | Thickness (ga.) | Span (ft) | | | | | | |
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | Allowable Load (psf) | | | | | | |
| STANDARD TOP RAIL | R-Mer Shield 12.75 | 12.75 | 20 | N/A | N/A | N/A | N/A | 37.5 | N/A | N/A |
| | R-Mer Shield 16.75 | 16.75 | 20 | N/A | N/A | N/A | N/A | 37.5 | N/A | N/A |
| | R-Mer Shield 16.75 | 16.75 | 24 | 48.0 | 40.5 | 33.0 | N/A | N/A | N/A | N/A |
| | R-Mer Shield 18.75 | 18.75 | 22 | 46.5 | 39.4 | 32.3 | N/A | N/A | N/A | N/A |
| | R-Mer Shield 24.75 | 24.75 | 22 | 43.8 | 37.5 | 31.3 | N/A | N/A | N/A | N/A |
| | R-Mer Shield 16.75 | 16.75 | 24 | N/A | N/A | N/A | N/A | 30.0 | N/A | N/A |
| | R-Mer Shield 18.75 | 18.75 | 22 | 52.5 | N/A | N/A | N/A | N/A | N/A | N/A |
| | R-Mer Shield 24.75 | 24.75 | 22 | 60.0 | 52.5 | 45.0 | 37.5 | 30.0 | N/A | N/A |

Note: Keep the manufacturer’s installation instructions available on the job site during the installation. Use corrosion resistant fasteners as specified in the IRC, the IBC, and the Texas Revisions.