

TEXAS DEPARTMENT OF INSURANCE

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PRODUCT EVALUATION

Effective March 1, 2013

RC-183

*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 shall be subject to reevaluation in **March 2017**.*

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.

Cor Span Metal Roofing Panels, manufactured by

Whirlwind Steel Buildings, Inc.
8324 Hansen Road
Houston, Texas 77075
Telephone: (713) 946-7140

will be accepted for use in areas along the Texas Gulf Coast when installed in accordance with the manufacturer's installation instructions and this product evaluation.

PRODUCT DESCRIPTION

The Cor Span metal roofing panels have 32 inches of coverage. The metal roof panels have a $\frac{7}{8}$ " rib height at $2\frac{2}{3}$ inches on center. The metal roof panels are manufactured from minimum 29 gauge Galvalume coated steel that conform to ASTM A792, Grade 80, with a minimum yield strength of 80,000 psi. The metal roofing panels can be painted with Kynar 500 Fluoropolymer finish coating.

LIMITATIONS

Roof Framing: The metal roofing panels shall be installed over one of the following types of roof framing:

- Minimum $1\frac{5}{32}$ " plywood roof deck,
- Minimum 1x4 No. 2 Southern Yellow Pine (SYP) wood purlins,
- Minimum 2x4 No. 2 Southern Yellow Pine wood purlins,
- Minimum SG-101 16 gauge (0.056") steel hat purlins.

New Roof Framing Attachment: The roof framing shall meet or exceed the uplift requirements of the International Residential Code or International Building Code and shall be installed as required for resistance to wind loads.

Design Wind Pressures: The design pressure uplift load resistance shall be as specified in Tables 1-4.

Roof Slope: The metal roofing panels may be installed on roofs with a roof slope as low as 3:12. If applied lap sealant is used, then the minimum roof slope is $\frac{1}{2}$:12.

Table 1 (Minimum 29 gauge Cor Span panel to minimum $1\frac{5}{32}$ " plywood roof deck)

Design Wind Pressure	Attachment to $1\frac{5}{32}$ " Plywood
-86.0 psf	Fastener Pattern No. 1 @ 24 inches o.c.
-153.5 psf	Fastener Pattern No. 2 @ 12 inches o.c.

Table 2 (Minimum 29 gauge Cor Span panel to minimum 1x4 No. 2 SYP wood purlins)

Design Wind Pressure	Attachment to 1x4 Wood Purlins	Number Screws Per Purlin to Truss/Rafter
-55.0 psf	Fastener Pattern No. 1 @ 24 inches o.c.	Two (2) No. 8 x 2 $\frac{1}{2}$ "
-110.0 psf	Fastener Pattern No. 2 @ 12 inches o.c.	Two (2) No. 8 x 2 $\frac{1}{2}$ "

Table 3 (Minimum 29 gauge Cor Span panel to minimum 2x4 No. 2 SYP wood purlins)

Design Wind Pressure	Attachment to 2x4 Wood Purlins	Number Screws Per Purlin to Truss/Rafter
-86.0 psf	Fastener Pattern No. 1 @ 24 inches o.c.	Three (3) No. 8 x 3"
-153.5 psf	Fastener Pattern No. 2 @ 12 inches o.c.	Three (3) No. 8 x 3"

Table 4 (Minimum 29 gauge Cor Span panel to SG-101 16 gauge steel hat purlins)

Design Wind Pressure	Attachment to SG-101 16 Gauge Steel Hat Purlins	Number Screws Per Purlin to Truss/Rafter
-73.3 psf	Fastener Pattern No. 1 @ 24 inches o.c.	Two (2) No. 8 x 2 $\frac{1}{2}$ "
-145.5 psf	Fastener Pattern No. 2 @ 12 inches o.c.	Two (2) No. 8 x 2 $\frac{1}{2}$ "

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 applied over an existing, solid minimum $1\frac{5}{32}$ " plywood roof deck. Note: Inspection of the existing roof deck must be made prior to the installation of the roof panels. The condition of the existing roof deck must be acceptable to receive the metal roofing panels before the metal roofing panel installation proceeds. NOTE: Underlayment is not required to be installed.

INSTALLATION INSTRUCTIONS

General: The metal roofing panels shall be installed in accordance with the manufacturer's recommended installation instructions and this evaluation report.

Panels: The metal roofing panels shall be secured to the roof framing as specified in Tables 1-4 and in accordance with this section.

Wood Purlins: The wood purlins shall be secured to minimum Southern Yellow Pine rafters or trusses roof framing using minimum No. 8 x 2 $\frac{1}{2}$ " long wood screws as specified in Table 2 for 1x4 purlins and minimum No. 8 x 3" long wood screws as specified in Table 3 for 2x4 purlins.

Steel Purlins: The SG-101 16 gauge steel hat purlins shall be secured to minimum Southern Yellow Pine rafters or trusses roof framing using minimum No. 8 x 2 $\frac{1}{2}$ " long screws as specified in Table 4.

Underlayment: For installations over a solid deck, 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 6 inch side laps and 3 inch end laps. The underlayment shall be applied with corrosion resistant roofing nails in accordance with the manufacturer's installation instructions. Fasteners shall be applied along the overlaps a maximum of 36 inches on center.

Attachment of Metal Roof Panels to the Roof Deck: The metal roofing panels shall be secured to the roof framing in one of the following ways:

Roofing Panels to Plywood Deck: Minimum No. 10-15 x 1 ½" long, HiLo Woodgrip screws with washers, manufactured by SFS. The fasteners shall be long enough to ensure a minimum penetration of ¼" below the roof deck. (Note: If the metal roofing panels are installed over an existing roof covering, then the fastener length shall be increased so that the fasteners are long enough to ensure a minimum penetration of ¼" below the existing plywood roof decking.) The required fastener pattern and maximum allowable spacing of the fastener lines is specified in Table 1. Refer to Figure 1 for illustrations of the fastener patterns.

Roofing Panels to the 1x4 Wood Purlins: Minimum No. 10-15 x 1 ½" long, HiLo Woodgrip screws with washers, manufactured by SFS. The required fastener pattern, the maximum allowable spacing of the fastener lines, and the attachment of the purlins to the roof framing is specified in Table 2. Refer to Figure 2 for illustrations of the fastener patterns.

Roofing Panels to the 2x4 Wood Purlins: Minimum No. 10-15 x 1 ½" long, HiLo Woodgrip screws with washers, manufactured by SFS. The required fastener pattern, the maximum allowable spacing of the fastener lines, and the attachment of the purlins to the roof framing is specified in Table 3. Refer to Figure 3 for illustrations of the fastener patterns.

Roofing Panels to the Steel Purlins: Minimum No. 12-14 x 1" long, HWH #3PT screws with washers, manufactured by Buildex. The fasteners shall be long enough to ensure a minimum penetration of 3 pitches of thread below the steel hat purlins. The required fastener pattern, the maximum allowable spacing of the fastener lines, and the attachment of the purlins to the roof framing is specified in Table 4. Refer to Figure 4 for illustrations of the fastener patterns.

Trims, Closures, and Accessories: Components, such as the eave trim, rake trim, ridge trim, hip trim, and valley trim shall be installed as required by the manufacturer.

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

No. 10-15 HiLo Woodgrip screws, manufactured by SFS

- Ultimate withdrawal (pullout) ≥ 524 lbs. in Southern Yellow pine (minimum 1" penetration)

No. 12-14 HWH #3PT screws, manufactured by Buildex

- Ultimate withdrawal (pullout) ≥ 757 lbs. in 16 gauge steel

No. 8 x 2 ½" Dec-King screws, manufactured by Buildex

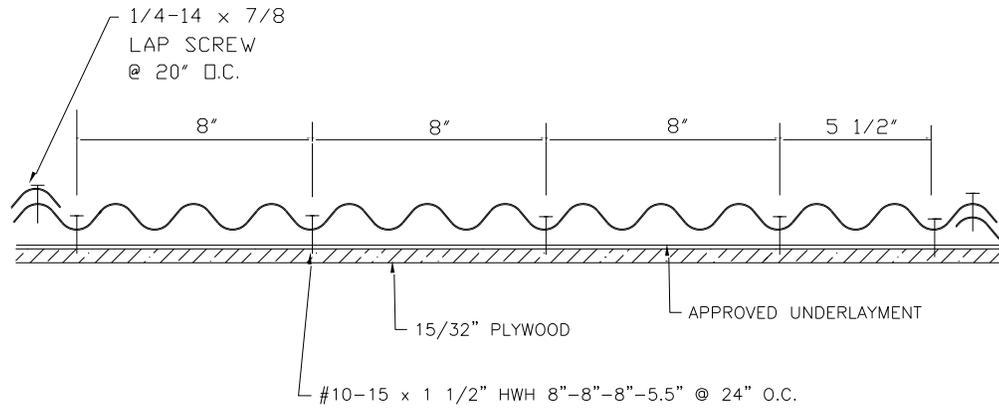
- Ultimate withdrawal (pullout) ≥ 630 lbs. in Southern Yellow Pine (minimum 1 ¼" embedment)

No. 8 x 3" Dec-King screws, manufactured by Buildex

- Ultimate withdrawal (pullout) ≥ 645 lbs. in Southern Yellow Pine (minimum 1 ¼" embedment)

Note: The manufacturer's installation instructions 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.

FASTENER PATTERN #1



FASTENER PATTERN #2

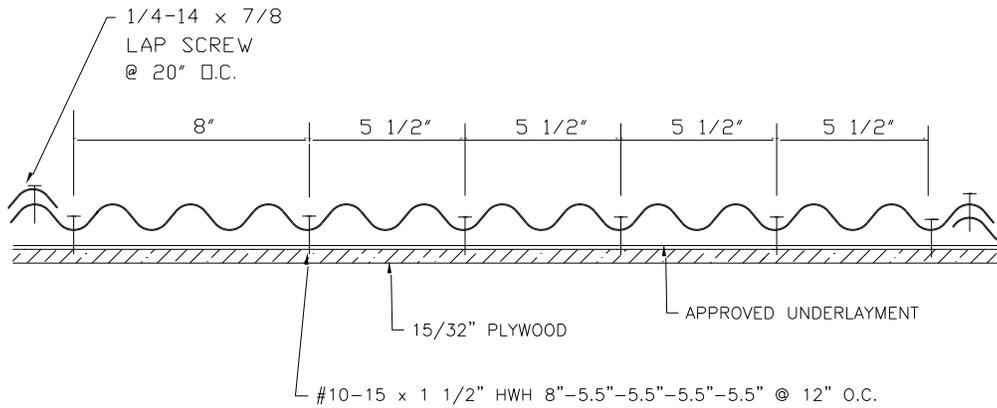
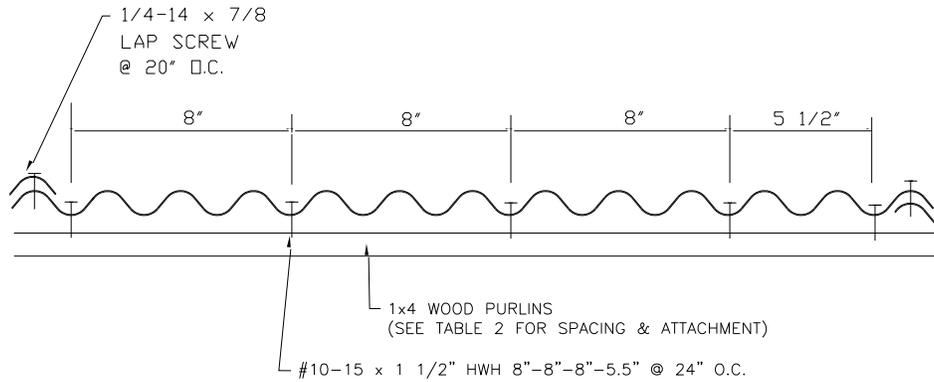


Figure 1. Cor Span Metal Roofing Panel Secured to a 15/32" Plywood Deck

FASTENER PATTERN #1



FASTENER PATTERN #2

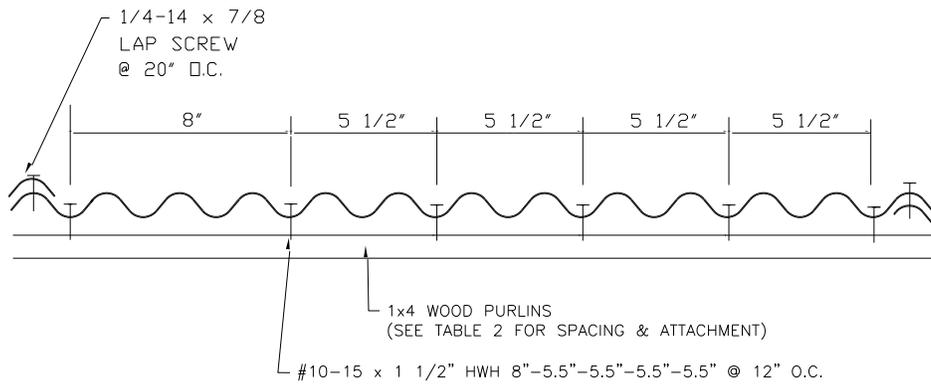
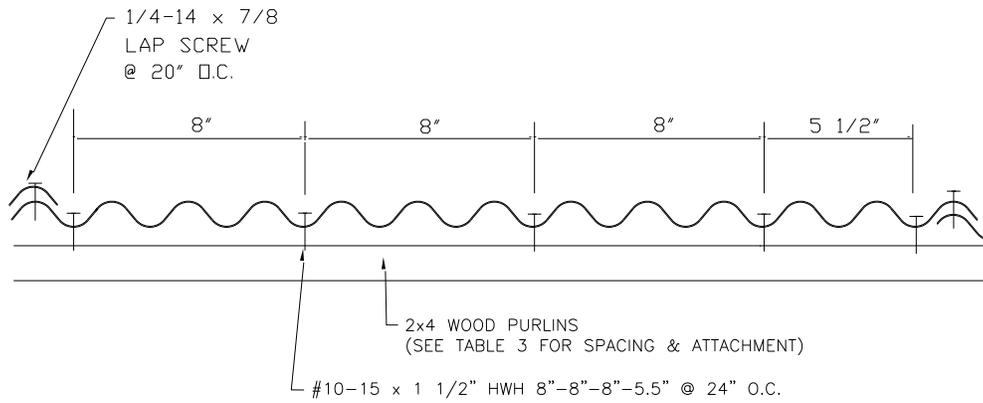


Figure 2. Cor Span Metal Roofing Panel Secured to 1x4 Wood Purlins

FASTENER PATTERN #1



FASTENER PATTERN #2

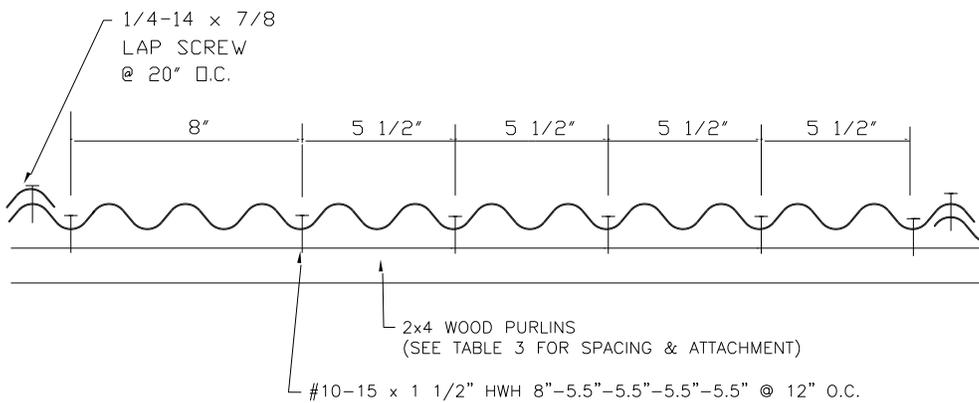
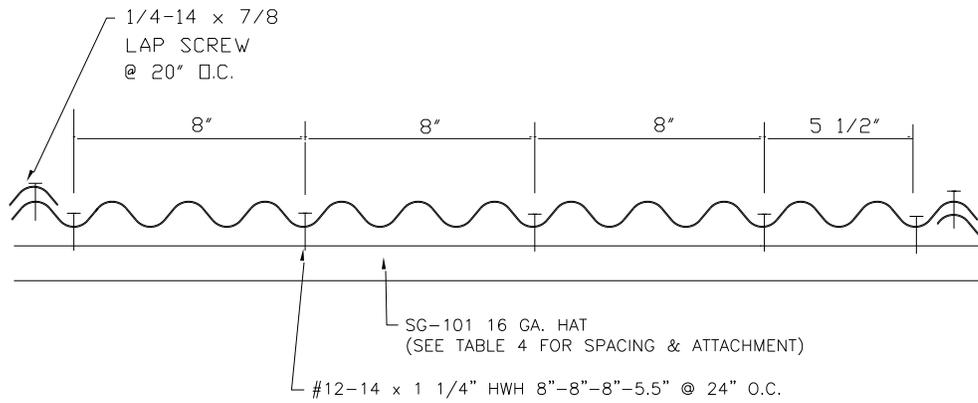


Figure 3. Cor Span Metal Roofing Panel Secured to 2x4 Wood Purlins

FASTENER PATTERN #1



FASTENER PATTERN #2

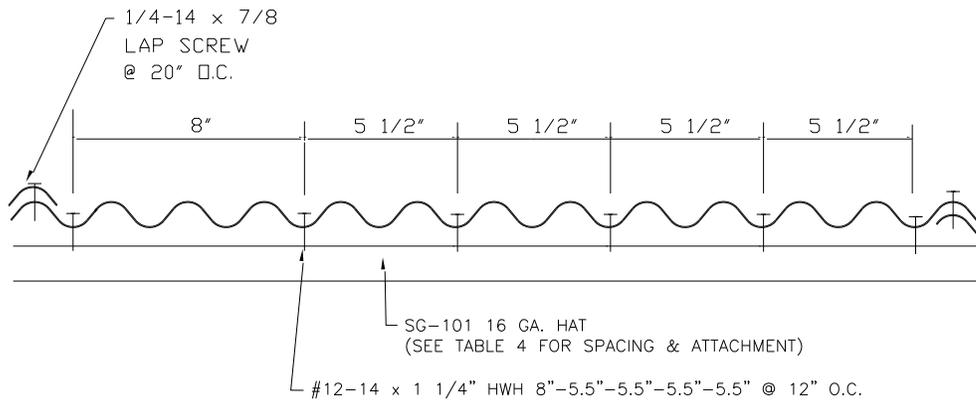


Figure 4. Cor Span Metal Roofing Panel Secured to SG-101 16 gauge steel hat purlins