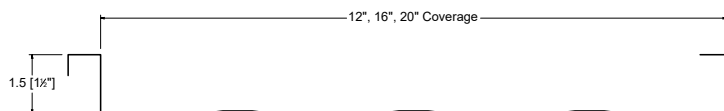
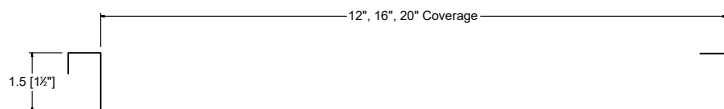


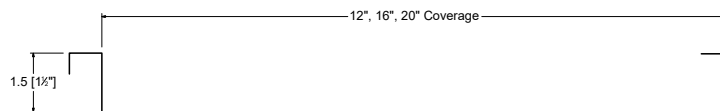
### STRIATIONS



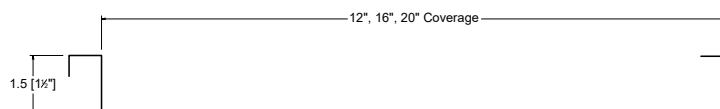
### CLIP RELIEF



### FLAT

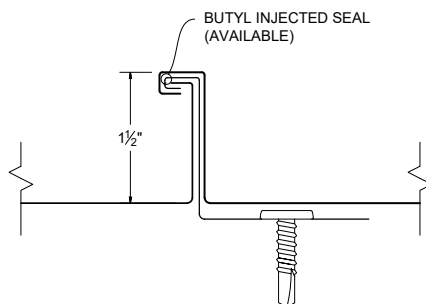


### ACCENT RIBS

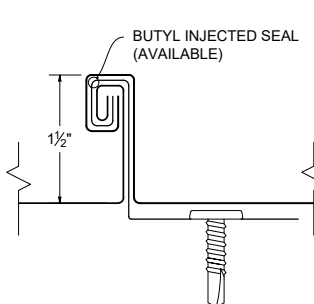


2 Accent ribs for 12" panels (Salem & Riverside)  
3 Accent ribs for 16" & 20" panels (Salem & Riverside)  
2 Accent ribs for all panels (Sacramento)

### 90° SEAM DETAIL



### 180° SEAM DETAIL



### KEY FEATURES

- 12", 16" & 20" coverage options (*other widths inquire*)
- 24 & 22 Tru-Gauge™ and .032" Aluminum
- 16 & 20 oz. Copper (*Please inquire*)
- Zinc Coil (*inquire for thicknesses*)
- Floating clip system: allows for expansion/contraction of panels in longer lengths
- 1-1/2" vertical rib
- Factory injected Butyl sealant
- Clip Relief is not standard, available upon request
- Concealed fasteners: fasteners cannot leak
- 1:12 minimum pitch recommended (*For lower pitches, please inquire*)
- Standard panel lengths 3' to 60' - notched  
Standard panel lengths 1' to 60' - not notched (*For longer panels, please inquire*)
- Onsite roll forming available
- Panel options: Striations, Accent Ribs, and Flat Pan
- OverEZee retro-fit systems available
- Weather tightness warranty available: (*Contact TMP representative for details*)

### TESTING

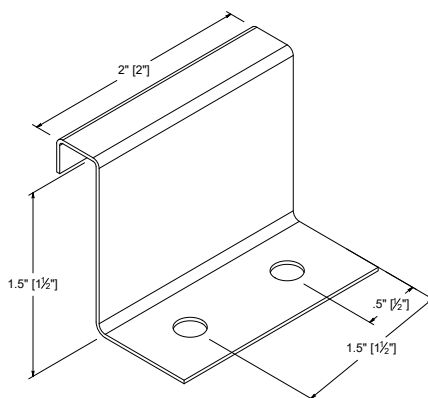
-  ICC #5046 with CBC-CRC Supplement
-  Code compliance UL Evaluation Report UL ER #25913-01
- UL Construction No. 554, 588, 603, 604, 605
- UL 580 Class 90 - Wind Uplift
- UL 790 Class A (ASTM E108) - Fire rated
- UL 2218 Class 4 - Impact (hail) rated
- ASTM E1680 - Air Infiltration (roof)
- ASTM E283 Air Infiltration(wall)
- ASTM E1646 - Water Infiltration (roof)
- ASTM E331 Water Infiltration(wall)
- ASTM A653/A924 - G90 Galvanized
- ASTM A792 - Zincalume/Galvalume AZ-50/55
- ASTM B209 - Aluminum Substrate
- ASTM E2140 Standard Test Method for Water Penetration (full immersion)
- ASTM E1514 Standard for Structural Standing steel roof panels systems.
- ASTM E2886 - Ember Resistant ridge/endwall/peak flashings available

## WEIGHT TABLE

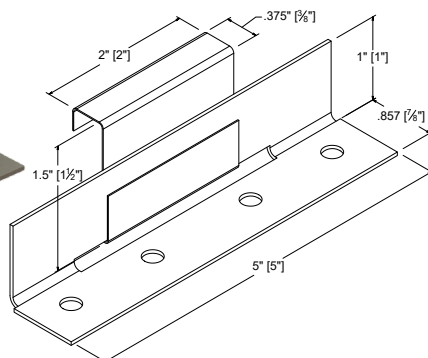
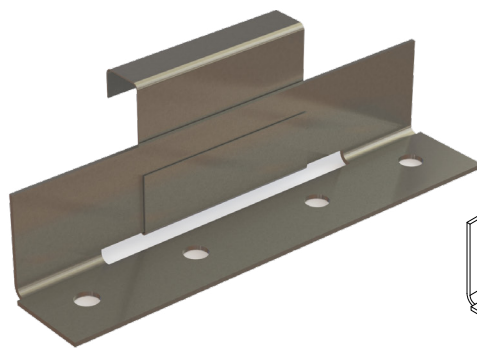
| MS-150       | WIDTH | 24 GA STEEL | 22 GA STEEL | .032" ALUM |
|--------------|-------|-------------|-------------|------------|
| THICKNESS    |       | 0.0236"     | 0.0285      | 0.032"     |
| WEIGHT/LINFT | 12"   | 1.279 LBS   | 1.544 LBS   | 0.606 LBS  |
| WEIGHT/SQFT  | 12"   | 1.279 LBS   | 1.544 LBS   | 0.606 LBS  |
| WEIGHT/LINFT | 16"   | 1.600 LBS   | 1.932 LBS   | 0.758 LBS  |
| WEIGHT/SQFT  | 16"   | 1.200 LBS   | 1.449 LBS   | 0.569 LBS  |
| WEIGHT/LINFT | 20"   | 1.921 LBS   | 2.320 LBS   | 0.910 LBS  |
| WEIGHT/SQFT  | 20"   | 1.152 LBS   | 1.392 LBS   | 0.547 LBS  |

| ASTM E 1680/E283<br>Air Penetration                  | ASTM E 1646/E331<br>Water Penetration |
|------------------------------------------------------|---------------------------------------|
| 25 PSF < 0.01 CFM/ft <sup>2</sup> -PASS              | 40 PSF - Pass                         |
| Force Engineering Test Result 696-0080T-21A-F        |                                       |
| Force Engineering Test Result 696-0126T-20A-F        |                                       |
| Force Engineering Test Result 696-0127T-20A-F        |                                       |
| Force Engineering Test Result 696-0128T-20A, B, E, F |                                       |
| Force Engineering Test Result 696-0128T-20C, D       |                                       |
| Intertek Test Result M076.01-901-44                  |                                       |

## Panel Clips



**STANDARD CLIP:** For UL rated non-engineered and solid deck applications.



**FLOATING CLIP:** For UL rated non-engineered and solid deck applications. This accommodate 1/2" of movement in both directions.

### Clip Spacing

Panel clip spacing is based on structural design loads, engineered spanning capability of the panels and substrate.

Clips are fabricated from Grade 50 G90 base steel. The upper portion of the clip is 22ga thick, with a base of 16ga.

Floating clips will accommodate 1/2" of movement in both directions. This will allow the panel to easily expand and contract with thermal changes. Contact TMP rep. for applications requiring allowances for more movement.

### Fasteners

All fasteners into steel and plywood must extend at least 3 full threads beyond the material. When attaching to dimensional lumber, 1" embedment is required.

#### 90° Seam

OSB: #10 Burr Buster  
Plywood and Dimensional Lumber:  
#10 Screw 16ga (or less)  
Steel deck:  
#10 or #12 Screw with DP-1

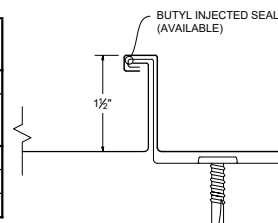
#### 180° Seam

OSB: #10 Burr Buster  
Plywood and Dimensional Lumber:  
#10 or #12 Screw  
16ga (or less) Steel deck:  
#14 Screw with DP-1

## SINGLE LOCK NEGATIVE LOAD CHART

### 90° SEAM (SINGLE FOLD)

|            |        |           |               | SECTION PROPERTIES               |                                        |                                 |                                  |                                        |                                 | ALLOWABLE UNIFORM LOADS, psf<br>For various clip spacings (i.e. span values) |      |      |      |      |      |      |
|------------|--------|-----------|---------------|----------------------------------|----------------------------------------|---------------------------------|----------------------------------|----------------------------------------|---------------------------------|------------------------------------------------------------------------------|------|------|------|------|------|------|
| Width, in. | Gauge  | Yield ksi | Weight<br>psf | Top in Compression               |                                        |                                 | Bottom in Compression            |                                        |                                 | Negative Load                                                                |      |      |      |      |      |      |
|            |        |           |               | $I_{xx}$<br>in <sup>4</sup> /ft. | $I_{xx}$ (eff)<br>in <sup>4</sup> /ft. | $S_{xx}$<br>in <sup>3</sup> /ft | $I_{xx}$<br>in <sup>4</sup> /ft. | $I_{xx}$ (eff)<br>in <sup>4</sup> /ft. | $S_{xx}$<br>in <sup>3</sup> /ft | 1'                                                                           | 1.5' | 2'   | 2.5' | 3'   | 3.5' | 4'   |
| 16.75      | 24     | 50        | 1.22          | 0.2350                           | 0.2100                                 | 0.1350                          | 0.1478                           | 0.1731                                 | 0.1488                          | 13.0                                                                         | 12.1 | 11.3 | 10.4 | 9.5  | 8.7  | 7.8  |
| 16.75      | 22     | 50        | 1.46          | 0.2868                           | 0.2560                                 | 0.1623                          | 0.1821                           | 0.2125                                 | 0.1824                          | 57.3                                                                         | 50.4 | 43.4 | 36.5 | 29.5 | 22.6 | 15.6 |
| 16.75      | 0.032" | 19        | 0.56          | 0.2070                           | 0.2070                                 | 0.1220                          | 0.2070                           | 0.2070                                 | 0.5696                          | 36.4                                                                         | 32.5 | 28.6 | 24.7 | 20.8 | 16.9 | 13.0 |



- Charted Load/Span values are based on ASTM E1592-02 / ASTM E1592-05 testing protocol
- Charted Allowable Uniform Loads are based on the Ultimate Uniform Load (per ASTM E1592-05 testing) divided by 2.00 Factor-of-Safety.
- Minimum recommended substrate (structure) recommendations:
  - o Open-framing (i.e.purlins) -16ga (design thickness=0.0566")
  - o Plywood/OSB - 15/32" or thicker is recommend to assure an effective degree of fastener thread engagement.
  - o Metal deck - 22 ga. (design thickness=0.0283")

## SINGLE LOCK POSITIVE LOAD CHART

### 90° SEAM (SINGLE FOLD)

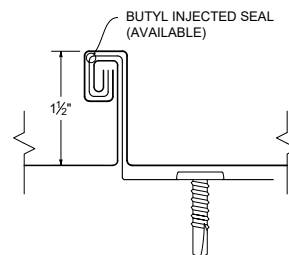
|            |        |           |            | SECTION PROPERTIES               |                                        |                                  |                                  |                                        |                                  | ALLOWABLE UNIFORM LOADS, psf<br>For various clip spacings (i.e. span values) |       |       |       |       |       |       |      |      |      |
|------------|--------|-----------|------------|----------------------------------|----------------------------------------|----------------------------------|----------------------------------|----------------------------------------|----------------------------------|------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|------|------|------|
| Width, in. | Gauge  | Yield ksi | Weight psf | Top in Compression               |                                        |                                  | Bottom in Compression            |                                        |                                  | Positive Load                                                                |       |       |       |       |       |       |      |      |      |
|            |        |           |            | $I_{xx}$<br>in <sup>4</sup> /ft. | $I_{xx}$ (eff)<br>in <sup>4</sup> /ft. | $S_{xx}$<br>in <sup>3</sup> /ft. | $I_{xx}$<br>in <sup>4</sup> /ft. | $I_{xx}$ (eff)<br>in <sup>4</sup> /ft. | $S_{xx}$<br>in <sup>3</sup> /ft. | 2'                                                                           | 2.5'  | 3'    | 3.5'  | 4'    | 4.5'  | 5'    | 5.5' | 6'   | 8'   |
| 12         | 24     | 50        | 1.24       | 0.1239                           | 0.1100                                 | 0.1017                           | 0.0772                           | 0.0907                                 | 0.1068                           | 279.6                                                                        | 223.6 | 186.4 | 159.7 | 139.8 | 124.2 | 106.8 | 88.3 | 74.2 | 41.7 |
| 12         | 22     | 50        | 1.58       | 0.1497                           | 0.1330                                 | 0.1233                           | 0.0953                           | 0.1110                                 | 0.1104                           | 404.6                                                                        | 323.6 | 269.7 | 225.3 | 172.5 | 136.3 | 110.4 | 91.2 | 76.7 | 43.1 |
| 12         | 0.032" | 19        | 0.700      | 0.1720                           | 0.1720                                 | 0.1419                           | 0.1720                           | 0.1720                                 | 0.4826                           | 39.3                                                                         | 25.2  | 17.5  | 12.8  | 9.8   | 7.8   | 6.3   | 5.2  | 4.4  | 2.5  |
| 12         | 0.040" | 19        | 0.855      | 0.2110                           | 0.2110                                 | 0.1739                           | 0.4110                           | 0.2110                                 | 0.5924                           | 60.5                                                                         | 38.7  | 26.9  | 19.8  | 15.1  | 12.0  | 9.7   | 8.0  | 6.7  | 3.8  |
| 16         | 24     | 50        | 1.18       | 0.0990                           | 0.0871                                 | 0.0777                           | 0.0579                           | 0.0698                                 | 0.0805                           | 209.6                                                                        | 167.6 | 139.7 | 119.7 | 104.8 | 93.1  | 77.7  | 64.2 | 54.0 | 30.4 |
| 16         | 22     | 50        | 1.52       | 0.1200                           | 0.1060                                 | 0.0941                           | 0.0720                           | 0.0860                                 | 0.0830                           | 303.2                                                                        | 242.6 | 202.1 | 173.3 | 147.0 | 116.2 | 94.1  | 77.8 | 65.4 | 36.8 |
| 16         | 0.032" | 19        | 0.640      | 0.1370                           | 0.1370                                 | 0.1084                           | 0.1370                           | 0.1370                                 | 0.4732                           | 22.4                                                                         | 14.3  | 9.9   | 7.3   | 5.6   | 4.4   | 3.6   | 3.0  | 2.5  | 1.4  |
| 16         | 0.040" | 19        | 0.780      | 0.1690                           | 0.1690                                 | 0.1330                           | 0.1690                           | 0.1690                                 | 0.5800                           | 34.6                                                                         | 22.2  | 15.4  | 11.3  | 8.7   | 6.8   | 5.5   | 4.6  | 3.9  | 2.2  |
| 18         | 24     | 50        | 1.12       | 0.0900                           | 0.0788                                 | 0.0692                           | 0.0513                           | 0.0625                                 | 0.0715                           | 125.5                                                                        | 100.4 | 83.6  | 71.7  | 62.7  | 55.8  | 50.2  | 45.6 | 41.8 | 27.0 |
| 18         | 22     | 50        | 1.46       | 0.1090                           | 0.0960                                 | 0.0839                           | 0.0640                           | 0.0771                                 | 0.0737                           | 269.6                                                                        | 215.6 | 179.7 | 154.0 | 131.1 | 103.6 | 83.9  | 69.3 | 58.3 | 32.8 |
| 18         | 0.032" | 19        | 0.620      | 0.1250                           | 0.1250                                 | 0.0967                           | 0.1250                           | 0.1250                                 | 0.4680                           | 17.7                                                                         | 11.4  | 7.9   | 5.8   | 4.4   | 3.5   | 2.8   | 2.3  | 2.0  | 1.1  |
| 18         | 0.040" | 19        | 0.760      | 0.1540                           | 0.1540                                 | 0.1180                           | 0.1540                           | 0.1540                                 | 0.5720                           | 27.3                                                                         | 17.5  | 12.1  | 8.9   | 6.8   | 5.4   | 4.4   | 3.6  | 3.0  | 1.7  |

- Allowable loads for Steel panels are calculated in accordance with 2020 AISI S100 specifications considering bending, shear, combined bending and shear and deflection. Allowable load considers a 3 or more equal span condition.
- The Versa-Span Panel when installed as a three-span condition with spans of 5 ft. on-center for Steel and 3.0 ft. on-center for Aluminum are capable of withstanding the minimum uniform distributed load of 20 psf (0.958 kPa) noted in Table 1607.1 of the IBC and a minimum concentrated load of 300 lbf (1.33 kN).
- When panels are installed over solid or closely fitted deck sheathing, the capacity is limited to the capacity of the underlying sheathing.

## DOUBLE LOCK NEGATIVE LOAD CHART

### 180° SEAM (DOUBLE FOLD)

|            |        |           |               | SECTION PROPERTIES               |                                        |                                 |                                  |                                        |                                 | ALLOWABLE UNIFORM LOADS, psf<br>For various clip spacings (i.e. span values) |       |       |       |       |      |      |
|------------|--------|-----------|---------------|----------------------------------|----------------------------------------|---------------------------------|----------------------------------|----------------------------------------|---------------------------------|------------------------------------------------------------------------------|-------|-------|-------|-------|------|------|
| Width, in. | Gauge  | Yield ksi | Weight<br>psf | Top in Compression               |                                        |                                 | Bottom in Compression            |                                        |                                 | Negative Load                                                                |       |       |       |       |      |      |
|            |        |           |               | $I_{xx}$<br>in <sup>4</sup> /ft. | $I_{xx}$ (eff)<br>in <sup>4</sup> /ft. | $S_{xx}$<br>in <sup>3</sup> /ft | $I_{xx}$<br>in <sup>4</sup> /ft. | $I_{xx}$ (eff)<br>in <sup>4</sup> /ft. | $S_{xx}$<br>in <sup>3</sup> /ft | 1'                                                                           | 1.5'  | 2'    | 2.5'  | 3'    | 3.5' | 4'   |
| 12 5/8     | 24     | 50        | 1.24          | 0.0973                           | 0.0864                                 | 0.0781                          | 0.0596                           | 0.0705                                 | 0.0643                          | 137.9                                                                        | 124.0 | 110.2 | 96.3  | 82.4  | 68.6 | 54.7 |
| 12         | 22     | 50        | 1.58          | 0.1233                           | 0.1100                                 | 0.0994                          | 0.0779                           | 0.0911                                 | 0.0816                          | 182.2                                                                        | 161.8 | 141.4 | 121.1 | 100.7 | 80.3 | 59.9 |
| 12 5/8     | zz     | 19        | 0.62          | 0.134                            | 0.134                                  | 0.1077                          | 0.134                            | 0.134                                  | 0.4107                          | 111.9                                                                        | 100.1 | 88.4  | 76.7  | 65.0  | 53.3 | 41.6 |
| 16 5/8     | 24     | 50        | 1.36          | 0.0782                           | 0.0686                                 | 0.0598                          | 0.0451                           | 0.0547                                 | 0.0484                          | 119.7                                                                        | 107.1 | 94.5  | 81.9  | 69.4  | 56.8 | 44.2 |
| 16 5/8     | 22     | 50        | 1.71          | 0.0992                           | 0.0874                                 | 0.0767                          | 0.0586                           | 0.0704                                 | 0.0965                          | 145.7                                                                        | 128.8 | 111.9 | 95.0  | 78.0  | 61.1 | 44.2 |
| 18         | 24     | 50        | 1.28          | 0.0707                           | 0.0618                                 | 0.0534                          | 0.0400                           | 0.0489                                 | 0.0429                          | 109.3                                                                        | 97.1  | 85.0  | 72.8  | 60.7  | 48.5 | 36.4 |
| 18         | 22     | 50        | 1.61          | 0.0910                           | 0.0797                                 | 0.0686                          | 0.0520                           | 0.0633                                 | 0.0570                          | 124.9                                                                        | 111.5 | 98.0  | 84.6  | 71.1  | 57.7 | 44.2 |
| 18         | 0.032" | 19        | 0.62          | 0.2070                           | 0.2070                                 | 0.1220                          | 0.2070                           | 0.2070                                 | 0.5696                          | 83.3                                                                         | 73.7  | 64.2  | 54.6  | 45.1  | 35.5 | 26.0 |



- Charted Load/Span values are based on ASTM E1592-02 / ASTM E1592-05 testing protocol
- Charted Allowable Uniform Loads are based on the Ultimate Uniform Load (per ASTM E1592-05 testing) divided by 2.00 Factor-of-Safety.
- Minimum recommended substrate (structure) recommendations:
  - o Open-framing (i.e.purlins) -16ga (design thickness=0.0566")
  - o Plywood/OSB - 15/32" or thicker is recommend to assure an effective degree of fastener thread engagement.
  - o Metal deck - 22 ga. (design thickness=0.0283")

## DOUBLE LOCK POSITIVE LOAD CHART

### 180° SEAM (DOUBLE FOLD)

|            |        |           |            | SECTION PROPERTIES               |                                        |                                  |                                  |                                        |                                  | ALLOWABLE UNIFORM LOADS, psf<br>For various clip spacings (i.e. span values) |       |       |       |       |       |       |      |      |      |
|------------|--------|-----------|------------|----------------------------------|----------------------------------------|----------------------------------|----------------------------------|----------------------------------------|----------------------------------|------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|------|------|------|
| Width, in. | Gauge  | Yield ksi | Weight psf | Top in Compression               |                                        |                                  | Bottom in Compression            |                                        |                                  | Positive Load                                                                |       |       |       |       |       |       |      |      |      |
|            |        |           |            | $I_{xx}$<br>in <sup>4</sup> /ft. | $I_{xx}$ (eff)<br>in <sup>4</sup> /ft. | $S_{xx}$<br>in <sup>3</sup> /ft. | $I_{xx}$<br>in <sup>4</sup> /ft. | $I_{xx}$ (eff)<br>in <sup>4</sup> /ft. | $S_{xx}$<br>in <sup>3</sup> /ft. | 2'                                                                           | 2.5'  | 3'    | 3.5'  | 4'    | 4.5'  | 5'    | 5.5' | 6'   | 8'   |
| 12         | 24     | 50        | 1.24       | 0.1239                           | 0.1100                                 | 0.1017                           | 0.0772                           | 0.0907                                 | 0.1068                           | 279.6                                                                        | 223.6 | 186.4 | 159.7 | 139.8 | 124.2 | 106.8 | 88.3 | 74.2 | 41.7 |
| 12         | 22     | 50        | 1.58       | 0.1497                           | 0.1330                                 | 0.1233                           | 0.0953                           | 0.1110                                 | 0.1104                           | 404.6                                                                        | 323.6 | 269.7 | 225.3 | 172.5 | 136.3 | 110.4 | 91.2 | 76.7 | 43.1 |
| 12         | 0.032" | 19        | 0.700      | 0.1720                           | 0.1720                                 | 0.1419                           | 0.1720                           | 0.1720                                 | 0.4826                           | 39.3                                                                         | 25.2  | 17.5  | 12.8  | 9.8   | 7.8   | 6.3   | 5.2  | 4.4  | 2.5  |
| 12         | 0.040" | 19        | 0.855      | 0.2110                           | 0.2110                                 | 0.1739                           | 0.4110                           | 0.2110                                 | 0.5924                           | 60.5                                                                         | 38.7  | 26.9  | 19.8  | 15.1  | 12.0  | 9.7   | 8.0  | 6.7  | 3.8  |
| 16         | 24     | 50        | 1.18       | 0.0990                           | 0.0871                                 | 0.0777                           | 0.0579                           | 0.0698                                 | 0.0805                           | 209.6                                                                        | 167.6 | 139.7 | 119.7 | 104.8 | 93.1  | 77.7  | 64.2 | 54.0 | 30.4 |
| 16         | 22     | 50        | 1.52       | 0.1200                           | 0.1060                                 | 0.0941                           | 0.0720                           | 0.0860                                 | 0.0830                           | 303.2                                                                        | 242.6 | 202.1 | 173.3 | 147.0 | 116.2 | 94.1  | 77.8 | 65.4 | 36.8 |
| 16         | 0.032" | 19        | 0.640      | 0.1370                           | 0.1370                                 | 0.1084                           | 0.1370                           | 0.1370                                 | 0.4732                           | 22.4                                                                         | 14.3  | 9.9   | 7.3   | 5.6   | 4.4   | 3.6   | 3.0  | 2.5  | 1.4  |
| 16         | 0.040" | 19        | 0.780      | 0.1690                           | 0.1690                                 | 0.1330                           | 0.1690                           | 0.1690                                 | 0.5800                           | 34.6                                                                         | 22.2  | 15.4  | 11.3  | 8.7   | 6.8   | 5.5   | 4.6  | 3.9  | 2.2  |
| 18         | 24     | 50        | 1.12       | 0.0900                           | 0.0788                                 | 0.0692                           | 0.0513                           | 0.0625                                 | 0.0715                           | 125.5                                                                        | 100.4 | 83.6  | 71.7  | 62.7  | 55.8  | 50.2  | 45.6 | 41.8 | 27.0 |
| 18         | 22     | 50        | 1.46       | 0.1090                           | 0.0960                                 | 0.0839                           | 0.0640                           | 0.0771                                 | 0.0737                           | 269.6                                                                        | 215.6 | 179.7 | 154.0 | 131.1 | 103.6 | 83.9  | 69.3 | 58.3 | 32.8 |
| 18         | 0.032" | 19        | 0.620      | 0.1250                           | 0.1250                                 | 0.0967                           | 0.1250                           | 0.1250                                 | 0.4680                           | 17.7                                                                         | 11.4  | 7.9   | 5.8   | 4.4   | 3.5   | 2.8   | 2.3  | 2.0  | 1.1  |
| 18         | 0.040" | 19        | 0.760      | 0.1540                           | 0.1540                                 | 0.1180                           | 0.1540                           | 0.1540                                 | 0.5720                           | 27.3                                                                         | 17.5  | 12.1  | 8.9   | 6.8   | 5.4   | 4.4   | 3.6  | 3.0  | 1.7  |

- Allowable loads for Steel panels are calculated in accordance with 2020 AISI S100 specifications considering bending, shear, combined bending and shear and deflection. Allowable load considers a 3 or more equal span condition.
- The Versa-Span Panel when installed as a three-span condition with spans of 5 ft. on-center for Steel and 3.0 ft. on-center for Aluminum are capable of withstanding the minimum uniform distributed load of 20 psf (0.958 kPa) noted in Table 1607.1 of the IBC and a minimum minimum concentrated load of 300 lbf (1.33 kN).
- When panels are installed over solid or closely fitted deck sheathing, the capacity is limited to the capacity of the underlying sheathing.