TAYLOR METAL PRODUCTS

# VERSA SPAN™ STANDING SEAM PANEL NEGATIVE-POSITIVE LOAD CHART

| SECTION PROPERTIES | | | | | | | | | | ALLOWABLE UNIFORM LOADS, psf For various clip spacings (i.e. span values) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Top in Compression | | | Bottom in Compression | | | Negative Load | | | | | | |
| Width, in. | Gauge | Yield ksi | Weight psf | $I_{xx}$ $in^4/ft.$ | $I_{xx\,(eff)}$ $in^4/ft.$ | $S_{xx}$ $in^3/ft$ | $I_{xx}$ $in^4/ft.$ | $I_{xx\,(eff)}$ $in^4/ft.$ | $S_{xx}$ $in^3/ft$ | 1' | 1.5' | 2' | 2.5' | 3' | 3.5' | 4' |
| 16 | 24 | 50 | 1.36 | 0.1549 | 0.1370 | 0.0789 | 0.0925 | 0.1106 | 0.0908 | 83.2 | 73.6 | 64.1 | 54.6 | 45.0 | 35.5 | 26.0 |
| 16 | 22 | 50 | 1.71 | 0.2040 | 0.1800 | 0.1010 | 0.1210 | 0.1451 | 0.1213 | 93.6 | 87.1 | 78.0 | 68.9 | 59.8 | 50.7 | 41.6 |
| 18 | 24 | 50 | 1.28 | 0.1400 | 0.1230 | 0.0708 | 0.0820 | 0.0988 | 0.0809 | 67.6 | 59.8 | 52.0 | 44.2 | 36.4 | 28.6 | 20.8 |
| 18 | 22 | 50 | 1.61 | 0.1850 | 0.1620 | 0.0880 | 0.1070 | 0.1296 | 0.1079 | 90.1 | 79.8 | 69.6 | 59.3 | 49.1 | 38.8 | 28.6 |
| 16 | 0.032 | 19 | 0.64 | 0.1420 | 0.1420 | 0.0961 | 0.1420 | 0.1420 | 0.4760 | 46.8 | 42.4 | 38.1 | 33.8 | 29.4 | 25.1 | 20.8 |
| 18 | 0.032 | 19 | 0.62 | 0.2070 | 0.2070 | 0.1220 | 0.2070 | 0.2070 | 0.5696 | 54.6 | 48.5 | 42.4 | 36.4 | 30.3 | 24.2 | 18.2 |

1a. Theoretical section properties for steel panels have been calculated per AISI S100 Specification for the Design of Cold-Formed Steel Structural Members.
1b. Theoretical section properties for aluminum panels have been calculated per the latest edition of the Aluminum Association Design Manual.
2. $I_{xx\,(eff)}$ values are "effective" stiffness properties for positive (downward) load induced deflection determination.
3. $S_{xx}$ values are to be used for flexural (bending) stress determination.
4. Charted Load/Span values are based on ASTM E1592-02 / ASTM E1592-05 testing protocol.
5. Charted Load/Span values above are based on Allowable Stress Design (ASD).....Load Resistance Factor Design (LRFD) technique not recommended for charted values.
6. Charted Allowable Uniform Loads are based on the Ultimate Uniform Load (per ASTM E1592 testing) divided by a 2.00 Factor-of-Safety.
7. Charted Allowable Uniform Loads do not consider panel weight (Dead Load) or clip-to-substrate (structure) fastener connection strength.
8. Clip-to-substrate (structure) fastener evaluation must consider the Pry Effect applied to the fastener by the clip base and the analysis should be performed by a licensed structural engineer.
9. Minimum recommended substrate (structure) recommendations:
   a. Open-framing (i.e. purlins) - 16 ga. (design thickness = 0.0566")
   b. Plywood/OSB - 5/8" (nominal).....this recommended thickness assures an effective degree of fastener thread engagement
   c. Metal deck - 22 ga. (design thickness = 0.0283")
10. Deflection limit consideration for positive (downward) loading is limited to a deflection ratio of L/180 of the span....where "L" is the span in inches.
11. Charted Allowable Uniform Loads cannot be increased by 1/3.

| SECTION PROPERTIES | | | | | | | | | | ALLOWABLE UNIFORM LOADS, psf For various clip spacings (i.e. span values) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Top in Compression | | | Bottom in Compression | | | Positive Load | | | | | | | | | |
| Width, in. | Gauge | Yield ksi | Weight psf | $I_{xx}$ $in^4/ft.$ | $I_{xx\,(eff)}$ $in^4/ft.$ | $S_{xx}$ $in^3/ft$ | $I_{xx}$ $in^4/ft.$ | $I_{xx\,(eff)}$ $in^4/ft.$ | $S_{xx}$ $in^3/ft$ | 2' | 2.5' | 3' | 3.5 | 4' | 4.5' | 5' | 5.5' | 6' | 8' |
| 12 | 24 | 50 | 1.47 | 0.1299 | 0.1095 | 0.0907 | 0.0596 | 0.0800 | 0.0638 | 278.2 | 222.6 | 177.2 | 130.2 | 99.7 | 78.8 | 63.8 | 52.7 | 44.3 | 24.9 |
| 12 | 22 | 50 | 1.875 | 0.1645 | 0.1401 | 0.1157 | 0.0804 | 0.1048 | 0.0827 | 440.0 | 330.8 | 229.7 | 168.8 | 129.2 | 102.1 | 82.7 | 68.4 | 57.4 | 32.3 |
| 12 | 0.032" | 19 | 0.700 | 0.1770 | 0.1770 | 0.1245 | 0.1770 | 0.1770 | 0.4904 | 50.5 | 40.4 | 33.6 | 28.8 | 25.2 | 22.4 | 20.2 | 18.0 | 15.1 | 8.5 |
| 12 | 0.040" | 19 | 0.855 | 0.2170 | 0.2170 | 0.1531 | 0.2170 | 0.2170 | 0.6016 | 76.4 | 61.1 | 50.9 | 43.6 | 38.2 | 33.9 | 30.6 | 27.5 | 23.1 | 13.0 |
| 16 | 24 | 50 | 1.36 | 0.1020 | 0.0855 | 0.0682 | 0.0451 | 0.0616 | 0.0480 | 208.6 | 166.9 | 133.3 | 98.0 | 75.0 | 59.3 | 48.0 | 39.7 | 33.3 | 18.8 |
| 16 | 22 | 50 | 1.71 | 0.1323 | 0.1120 | 0.0825 | 0.0609 | 0.0816 | 0.0623 | 330.0 | 249.2 | 173.1 | 127.1 | 97.3 | 76.9 | 62.3 | 51.5 | 43.3 | 24.3 |
| 16 | 0.032" | 19 | 0.640 | 0.1420 | 0.1420 | 0.0961 | 0.1420 | 0.1420 | 0.4760 | 37.7 | 30.2 | 25.2 | 21.6 | 18.9 | 16.8 | 14.6 | 12.1 | 10.1 | 5.7 |
| 16 | 0.040" | 19 | 0.780 | 0.1750 | 0.1750 | 0.1180 | 0.1750 | 0.1750 | 0.5830 | 57.3 | 45.8 | 38.2 | 32.7 | 28.6 | 25.5 | 22.9 | 19.9 | 16.7 | 9.4 |
| 18 | 24 | 50 | 1.28 | 0.0920 | 0.0769 | 0.0605 | 0.0400 | 0.0551 | 0.0426 | 185.5 | 148.4 | 118.3 | 86.9 | 66.6 | 52.6 | 42.6 | 35.2 | 29.6 | 16.6 |
| 18 | 22 | 50 | 1.61 | 0.1200 | 0.1009 | 0.0798 | 0.0540 | 0.0731 | 0.0553 | 293.2 | 221.2 | 153.6 | 112.9 | 86.4 | 68.3 | 55.3 | 45.7 | 38.4 | 21.6 |
| 18 | 0.032" | 19 | 0.620 | 0.1290 | 0.1290 | 0.0859 | 0.1290 | 0.1290 | 0.4700 | 33.6 | 26.9 | 22.4 | 19.2 | 16.8 | 14.9 | 13.5 | 11.4 | 9.6 | 5.4 |
| 18 | 0.040" | 19 | 0.760 | 0.1590 | 0.1590 | 0.1060 | 0.1590 | 0.1590 | 0.5740 | 50.9 | 40.7 | 33.9 | 29.1 | 25.5 | 22.6 | 20.4 | 17.4 | 14.6 | 8.2 |

1a. Theoretical section properties for Steel panelshave been calculated per 2020 AISI S100 North American Specification for the Design of Cold-Formed Steel Structural Member. $I_{xx}$ and $S_{xx}$ are effective section properties for deflection and bending.
1b. Theoretical section properties for Aluminum panels have been calculated per the 2020 edition of the Aluminum Association's Design Manual. $I_{xx}$ and $S_{xx}$ are effective section properties for deflection and bending.
2a. 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.
2b. Allowable loads for Aluminum panels are calculated in accordance with the 2020 edition of the Aluminum Association's Design Manual considering bending, shear, combined bending and shear and deflection. Allowable load considers a 3 or more equal span condition.
3. Allowable load does not address panel weight, fasteners, connection strength or support material.
4. Allowable load includes web crippling.
5. Load/Span values are based on theoretical computations and not load testing.
6. Deflection is not considered.
7. Allowable loads do not include a 1/3 stress increase for wind.
8. 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).
9. When panels are installed over solid or closely fitted deck sheathing, the capacity is limited to the capacity of the underlying sheathing.

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