

|            |        |           |            | 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            |                                        |                                 | 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'   | 4.5' | 5'   |
| 12         | 24     | 50        | 1.89       | 0.1064                           | 0.1062                                 | 0.1362                          | 0.1056                           | 0.1058                                 | 0.1513                          | 150.0                                                                        | 136.6 | 123.3 | 110.0 | 96.6  | 83.3 | 70.0 |      |      |
| 12         | 22     | 50        | 2.21       | 0.1323                           | 0.1321                                 | 0.1766                          | 0.1316                           | 0.1318                                 | 0.1986                          | 219.0                                                                        | 194.1 | 169.3 | 144.5 | 119.6 | 94.8 | 70.0 |      |      |
| 12         | 20     | 33        | 2.69       | 0.1804                           | 0.1800                                 | 0.2562                          | 0.1790                           | 0.1794                                 | 0.2938                          | 219.0                                                                        | 194.1 | 169.3 | 144.5 | 119.6 | 94.8 | 70.0 |      |      |
| 12         | 18     | 33        | 3.48       | 0.2460                           | 0.2450                                 | 0.3635                          | 0.2410                           | 0.2420                                 | 0.4126                          | 219.0                                                                        | 194.1 | 169.3 | 144.5 | 119.6 | 94.8 | 70.0 |      |      |
| 12         | 0.032" | 19        | 0.52       | 0.1802                           | 0.1802                                 | 0.2665                          | 0.1802                           | 0.1802                                 | 0.3148                          | 110.0                                                                        | 101.6 | 93.3  | 85.0  | 76.6  | 68.3 | 60.0 |      |      |
| 12         | 0.040" | 19        | 1.14       | 0.2210                           | 0.2210                                 | 0.3270                          | 0.2210                           | 0.2210                                 | 0.3860                          | 110.0                                                                        | 101.6 | 93.3  | 85.0  | 76.6  | 68.3 | 60.0 |      |      |
| 12         | 0.050" | 19        | 1.37       | 0.4180                           | 0.4180                                 | 0.5127                          | 0.4180                           | 0.4180                                 | 0.6107                          | 180.0                                                                        | 163.8 | 147.5 | 131.3 | 115.0 | 98.8 | 82.5 | 66.3 | 50.0 |
| 12         | 0.063" | 19        | 1.72       | 0.5090                           | 0.5090                                 | 0.6248                          | 0.5090                           | 0.5090                                 | 0.7423                          | 180.0                                                                        | 163.8 | 147.5 | 131.3 | 115.0 | 98.8 | 82.5 | 66.3 | 50.0 |

- Theoretical section properties for steel panels have been calculated per AISI S100 Specification for the Design of Cold-Formed Steel Structural Members.
- Theoretical section properties for aluminum panels have been calculated per the latest edition of the Aluminum Association Design Manual.
- $I_{xx}$  (eff) values are "effective" stiffness properties for positive (downward) load induced deflection determination.
- $S_{xx}$  values are to be used for flexural (bending) stress determination.
- Charted Load/Span values are based on ASTM E1592-05 (2017) testing protocol.
- Charted Load/Span values above are based on Allowable Stress Design (ASD).....Load Resistance Factor Design (LRFD) technique not recommended for charted values.
- Charted Allowable Uniform Loads are based on the Ultimate Uniform Load (per ASTM E1592-05 testing) divided by a 2.00 Factor-of-Safety.
- Charted Allowable Uniform Loads do not consider panel weight (Dead Load) or clip-to-substrate (structure) fastener connection strength.
- Clip-to-substrate (structure) fastener evaluation and analysis should be performed by a licensed structural engineer.
- Minimum recommended substrate (structure) recommendations:
  - Open-framing (i.e. girts) - 16 ga. (design thickness = 0.0566")
  - Plywood/OSB - 15/32" or thicker is recommended to assure an effective degree of fastener thread engagement
  - Metal deck - 22 ga. (design thickness = 0.0283")
- 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.
- Charted Allowable Uniform Loads cannot be increased by 1/3.

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|------------|--------|-----------|------------|----------------------------------|----------------------------------------|----------------------------------|----------------------------------|----------------------------------------|----------------------------------|------------------------------------------------------------------------------|--------|--------|-------|-------|-------|-------|-------|------|------|
| 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. | 1'                                                                           | 2'     | 3'     | 4'    | 5'    | 6'    | 7'    | 8'    | 9'   | 10'  |
| 12         | 24     | 50        | 1.89       | 0.1064                           | 0.1062                                 | 0.1362                           | 0.1056                           | 0.1058                                 | 0.1513                           | 1776.4                                                                       | 851.3  | 378.3  | 212.8 | 136.2 | 94.6  | 69.5  | 53.2  | 42.0 | 34.1 |
| 12         | 22     | 50        | 2.21       | 0.1323                           | 0.1321                                 | 0.1766                           | 0.1316                           | 0.1318                                 | 0.1986                           | 1904.6                                                                       | 952.27 | 490.56 | 275.9 | 176.6 | 122.6 | 90.1  | 68.98 | 54.5 | 44.2 |
| 12         | 20     | 33        | 2.69       | 0.1804                           | 0.1800                                 | 0.2562                           | 0.1790                           | 0.1794                                 | 0.2938                           | 1916.4                                                                       | 958.18 | 474.44 | 266.9 | 170.8 | 118.6 | 87.14 | 66.7  | 52.7 | 42.7 |
| 12         | 18     | 33        | 3.48       | 0.2460                           | 0.2450                                 | 0.3635                           | 0.2410                           | 0.2420                                 | 0.4126                           | 3306.4                                                                       | 1514.6 | 673.2  | 378.7 | 242.3 | 168.3 | 123.6 | 94.66 | 74.8 | 60.6 |
| 12         | 0.032" | 19        | 0.90       | 0.2780                           | 0.2780                                 | 0.3401                           | 0.2780                           | 0.2780                                 | 0.4058                           | 268.2                                                                        | 134.1  | 89.4   | 67.1  | 53.6  | 41.6  | 30.5  | 23.4  | 18.5 | 15.0 |
| 12         | 0.040" | 19        | 1.09       | 0.3410                           | 0.3410                                 | 0.4184                           | 0.3410                           | 0.3410                                 | 0.4989                           | 416.4                                                                        | 208.2  | 138.8  | 104.1 | 83.3  | 63.4  | 46.6  | 35.7  | 28.2 | 22.8 |
| 12         | 0.050" | 19        | 1.37       | 0.4180                           | 0.4180                                 | 0.5127                           | 0.4180                           | 0.4180                                 | 0.6107                           | 651.8                                                                        | 325.9  | 217.3  | 163.0 | 127.8 | 88.8  | 65.2  | 49.9  | 39.5 | 32.0 |
| 12         | 0.063" | 19        | 1.72       | 0.5090                           | 0.5090                                 | 0.6248                           | 0.5090                           | 0.5090                                 | 0.7423                           | 1038.2                                                                       | 519.1  | 346.1  | 259.6 | 171.8 | 119.3 | 87.7  | 67.1  | 53.0 | 43.0 |

- Theoretical section properties for Steel panels have 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.
- $I_{xx}$  (eff) values are "effective" stiffness properties for positive (downward) load induced deflection determination.
- 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.
- $S_{xx}$  values are to be used for flexural (bending) stress determination.
- Allowable load does not address panel weight, fasteners, connection strength or support material.
- Allowable load includes web crippling.
- Load/Span values are based on theoretical computations and not load testing.
- Deflection is not considered.
- Allowable loads do not include a 1/3 stress increase for wind.
- The NX-1 Panel when installed as a three-span condition with spans of 8 ft. on-center for Steel and 4 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 sheathing, the capacity is limited to the capacity of the underlying sheathing.



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