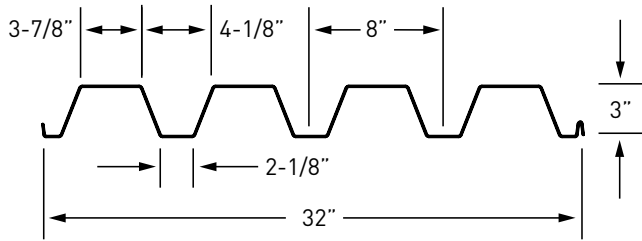
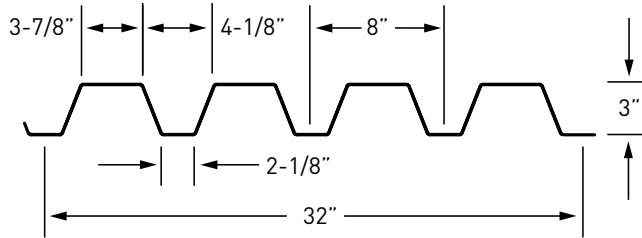


3.1 DGN-32, N-32 & NN-32

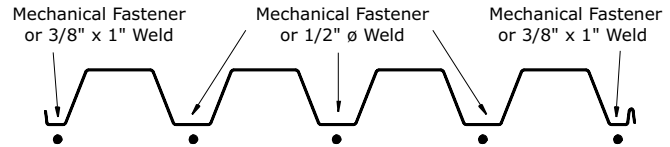
DGN-32 & N-32



NN-32 Nestable



Attachment Patterns



Note: Weld sizes are effective not visible. Refer to AISI S100-2007 or AWS D1.3 for additional welding requirements.

Panel Properties

| Gage | Weight | Base Metal Thickness | Yield Strength | Tensile Strength | Gross Section Properties | | | | |
|------|--------|----------------------|----------------|------------------|--------------------------|-------------------|------------------------------|-----------------|--------------------|
| | | | | | Area | Moment of Inertia | Distance to N.A. from Bottom | Section Modulus | Radius of Gyration |
| | | | | | | | | | |
| 22 | 1.87 | 0.0299 | 38 | 52 | 0.568 | 0.813 | 1.68 | 0.601 | 1.195 |
| 20 | 2.24 | 0.0359 | 38 | 52 | 0.680 | 0.966 | 1.68 | 0.717 | 1.192 |
| 18 | 2.95 | 0.0478 | 38 | 52 | 0.902 | 1.273 | 1.68 | 0.945 | 1.188 |
| 16 | 3.68 | 0.0598 | 38 | 52 | 1.130 | 1.577 | 1.68 | 1.167 | 1.181 |

| Gage | Effective Section Modulus for Bending at F_y | | | | | Effective Moment of Inertia for Deflection at Service Load | | | | |
|------|--|--------------------------------|------------------------------|--------------------------------|------------------------------|--|--------------------------------|------------------------------|------------------------------|------------------------------|
| | Area | Section Modulus | Distance to N.A. from Bottom | Section Modulus | Distance to N.A. from Bottom | Moment of Inertia | Moment of Inertia | Uniform Load Only | | |
| | | | | | | | | $I_d = (2I_e + I_g)/3$ | I_+ in ⁴ /ft | I_- in ⁴ /ft |
| | A_e^+ in ² /ft | S_e^+ in ³ /ft | y_b in | S_e^- in ³ /ft | y_b in | I_e^+ in ⁴ /ft | I_e^- in ⁴ /ft | I_+ in ⁴ /ft | I_- in ⁴ /ft | |
| 22 | 0.470 | 0.366 | 1.63 | 0.417 | 1.76 | 0.648 | 0.775 | 0.703 | 0.788 | |
| 20 | 0.576 | 0.470 | 1.44 | 0.522 | 1.74 | 0.813 | 0.951 | 0.864 | 0.956 | |
| 18 | 0.801 | 0.699 | 1.51 | 0.739 | 1.70 | 1.154 | 1.273 | 1.193 | 1.273 | |
| 16 | 1.048 | 0.900 | 1.57 | 0.939 | 1.68 | 1.528 | 1.577 | 1.544 | 1.577 | |

Reactions at Supports (plf) Based on Web Crippling

| Gage | Condition | Bearing Length of Webs | | | | | | | |
|------|-----------|----------------------------|------|------|------|-------------------------|------|------|------|
| | | Allowable (R_n/Ω) | | | | Factored (ΦR_n) | | | |
| | | 1" | 1.5" | 2" | 3" | 1" | 1.5" | 2" | 3" |
| 22 | End | 380 | 430 | 473 | 544 | 581 | 658 | 723 | 832 |
| | Interior | 666 | 740 | 802 | 907 | 990 | 1100 | 1193 | 1350 |
| 20 | End | 539 | 608 | 666 | 763 | 824 | 930 | 1018 | 1167 |
| | Interior | 942 | 1042 | 1127 | 1268 | 1401 | 1550 | 1676 | 1887 |
| 18 | End | 928 | 1039 | 1133 | 1290 | 1419 | 1590 | 1733 | 1974 |
| | Interior | 1621 | 1780 | 1915 | 2140 | 2411 | 2648 | 2848 | 3183 |
| 16 | End | 1416 | 1577 | 1713 | 1941 | 2167 | 2413 | 2621 | 2969 |
| | Interior | 2478 | 2706 | 2898 | 3221 | 3685 | 4025 | 4311 | 4792 |

Web Crippling Constraints

$h=3.06"$

$r=0.125"$

$\theta=70.7^\circ$

Inward Allowable (f_b/Ω) and Factored (Φf_b) Distributed Load (lbs/ft²)

| Gage | Span | Limit Condition | Panel Span (Support Spacing) | | | | | | | | | |
|-------|-------|-----------------|------------------------------|-------|-------|--------|--------|--------|--------------------------------------|--------|--------|--|
| | | | 4'-0" | 6'-0" | 8'-0" | 10'-0" | 12'-0" | 14'-0" | 16'-0" | 18'-0" | 20'-0" | |
| 22 | SS | f_b / Ω | 347 | 154 | 87 | 56 | 39 | 28 | 22 | 17 | 14 | |
| | | Φf_b | 551 | 245 | 138 | 88 | 61 | 45 | 34 | 27 | 22 | |
| | | L/360 | - | 142 | 60 | 31 | 18 | 11 | 7 | 5 | 4 | |
| | | L/240 | - | - | - | 46 | 27 | 17 | 11 | 8 | 6 | |
| | | L/180 | - | - | - | - | 36 | 22 | 15 | 11 | 8 | |
| | L/120 | - | - | - | - | - | - | - | 16 | 12 | | |
| | DS | f_b / Ω | 395 | 176 | 99 | 63 | 44 | 32 | 25 | 20 | 16 | |
| | | Φf_b | 627 | 279 | 157 | 100 | 70 | 51 | 39 | 31 | 25 | |
| | | L/360 | - | - | - | - | 43 | 27 | 18 | 13 | 9 | |
| | | L/240 | - | - | - | - | - | - | - | 19 | 14 | |
| | | L/180 | - | - | - | - | - | - | - | - | - | |
| | L/120 | - | - | - | - | - | - | - | - | - | | |
| | TS | f_b / Ω | 494 | 220 | 124 | 79 | 55 | 40 | Exceeds Maximum Product Length | | | |
| | | Φf_b | 784 | 348 | 196 | 125 | 87 | 64 | | | | |
| | | L/360 | - | - | - | 68 | 39 | 25 | | | | |
| L/240 | | - | - | - | - | - | 37 | | | | | |
| L/180 | | - | - | - | - | - | - | | | | | |
| L/120 | - | - | - | - | - | - | | | | | | |
| 20 | SS | f_b / Ω | 446 | 198 | 111 | 71 | 50 | 36 | 28 | 22 | 18 | |
| | | Φf_b | 707 | 314 | 177 | 113 | 79 | 58 | 44 | 35 | 28 | |
| | | L/360 | - | 175 | 74 | 38 | 22 | 14 | 9 | 6 | 5 | |
| | | L/240 | - | - | 111 | 57 | 33 | 21 | 14 | 10 | 7 | |
| | | L/180 | - | - | - | - | 44 | 28 | 18 | 13 | 9 | |
| | L/120 | - | - | - | - | - | - | 28 | 19 | 14 | | |
| | DS | f_b / Ω | 495 | 220 | 124 | 79 | 55 | 40 | 31 | 24 | 20 | |
| | | Φf_b | 785 | 349 | 196 | 126 | 87 | 64 | 49 | 39 | 31 | |
| | | L/360 | - | - | - | - | 53 | 33 | 22 | 16 | 11 | |
| | | L/240 | - | - | - | - | - | - | - | 23 | 17 | |
| | | L/180 | - | - | - | - | - | - | - | - | - | |
| | L/120 | - | - | - | - | - | - | - | - | - | | |
| | TS | f_b / Ω | 619 | 275 | 155 | 99 | 69 | 51 | Exceeds Maximum Product Length | | | |
| | | Φf_b | 981 | 436 | 245 | 157 | 109 | 80 | | | | |
| | | L/360 | - | - | - | 83 | 48 | 30 | | | | |
| L/240 | | - | - | - | - | - | 46 | | | | | |
| L/180 | | - | - | - | - | - | - | | | | | |
| L/120 | - | - | - | - | - | - | | | | | | |
| 18 | SS | f_b / Ω | 663 | 295 | 166 | 106 | 74 | 54 | 41 | 33 | 27 | |
| | | Φf_b | 1051 | 467 | 263 | 168 | 117 | 86 | 66 | 52 | 42 | |
| | | L/360 | - | 241 | 102 | 52 | 30 | 19 | 13 | 9 | 7 | |
| | | L/240 | - | - | 153 | 78 | 45 | 29 | 19 | 13 | 10 | |
| | | L/180 | - | - | - | 104 | 60 | 38 | 25 | 18 | 13 | |
| | L/120 | - | - | - | - | - | - | 38 | 27 | 20 | | |
| | DS | f_b / Ω | 701 | 311 | 175 | 112 | 78 | 57 | 44 | 35 | 28 | |
| | | Φf_b | 1112 | 494 | 278 | 178 | 124 | 91 | 69 | 55 | 44 | |
| | | L/360 | - | - | - | - | 73 | 46 | 31 | 22 | 16 | |
| | | L/240 | - | - | - | - | - | - | - | 32 | 24 | |
| | | L/180 | - | - | - | - | - | - | - | - | - | |
| | L/120 | - | - | - | - | - | - | - | - | - | | |
| | TS | f_b / Ω | 876 | 389 | 219 | 140 | 97 | 71 | Exceeds Maximum Product Length | | | |
| | | Φf_b | 1389 | 618 | 347 | 222 | 154 | 113 | | | | |
| | | L/360 | - | - | - | 115 | 67 | 42 | | | | |
| L/240 | | - | - | - | - | - | 63 | | | | | |
| L/180 | | - | - | - | - | - | - | | | | | |
| L/120 | - | - | - | - | - | - | | | | | | |
| 16 | SS | f_b / Ω | 854 | 379 | 213 | 137 | 95 | 70 | 53 | 42 | 34 | |
| | | Φf_b | 1354 | 602 | 339 | 217 | 150 | 111 | 85 | 67 | 54 | |
| | | L/360 | - | 312 | 132 | 67 | 39 | 25 | 16 | 12 | 8 | |
| | | L/240 | - | - | 198 | 101 | 59 | 37 | 25 | 17 | 13 | |
| | | L/180 | - | - | - | 135 | 78 | 49 | 33 | 23 | 17 | |
| | L/120 | - | - | - | - | - | - | 49 | 35 | 25 | | |
| | DS | f_b / Ω | 890 | 396 | 222 | 142 | 99 | 73 | 56 | 44 | 36 | |
| | | Φf_b | 1412 | 627 | 353 | 226 | 157 | 115 | 88 | 70 | 56 | |
| | | L/360 | - | - | - | - | 94 | 59 | 40 | 28 | 20 | |
| | | L/240 | - | - | - | - | - | - | - | 42 | 30 | |
| | | L/180 | - | - | - | - | - | - | - | - | - | |
| | L/120 | - | - | - | - | - | - | - | - | - | | |
| | TS | f_b / Ω | 1112 | 494 | 278 | 178 | 124 | 91 | Exceeds Maximum Product Length | | | |
| | | Φf_b | 1765 | 784 | 441 | 282 | 196 | 144 | | | | |
| | | L/360 | - | - | - | 149 | 86 | 54 | | | | |
| L/240 | | - | - | - | - | - | 81 | | | | | |
| L/180 | | - | - | - | - | - | - | | | | | |
| L/120 | - | - | - | - | - | - | | | | | | |

N PANELS