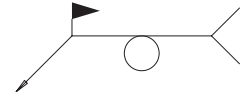


# 3.8 N-32

## Arc Spot/Seam Welds to Supports with Top Seam Welded Side Seam Attachment

Diaphragm Shear in pounds per linear foot (plf)



| Support Fastener Pattern | Gage  | Seam Attach. Spacing | Allowable Shear ( $q_a$ ) (plf), Factored Shear ( $q_f$ ) (plf), and Flexibility Factor (F) ( $10^{-6}$ in/lbs) |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
|--------------------------|-------|----------------------|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                          |       |                      | Span →  | 4' - 0"   |           | 6' - 0"   |           | 8' - 0"   |           | 10' - 0"  |           | 12' - 0"  |           | 14' - 0"  |           | 16' - 0"  |           | 18' - 0"  |           | 20' - 0"  |           |           |
| 32/5                     | 16 ga | 4"                   | $q_a$   | $q_f$     | 2742      | 4387      | 2742      | 4387      | 2742      | 4387      | 2742      | 4387      | 2742      | 4387      | 2742      | 4387      | 2349      | 3758      | 1856      | 2969      | 1503      | 2405      |
|                          |       |                      | F   |           | 2.8 +0R   |           | 2.8 +0R   |           | 2.8 +0R   |           | 2.8 +0R   |           | 2.8 +0R   |           | 2.8 +0R   |           | 2.8 +0R   |           | 2.8 +0R   |           | 2.8 +0R   |           |
|                          |       | 6"                   | $q_a$   | $q_f$     | 2742      | 4387      | 2742      | 4387      | 2742      | 4387      | 2742      | 4387      | 2742      | 4387      | 2742      | 4387      | 2349      | 3758      | 1856      | 2969      | 1503      | 2405      |
|                          |       |                      | F   |           | 3.1 -0.1R |           | 3.1 +0R   |           | 3.1 +0R   |           | 3.1 +0R   |           | 3.1 +0R   |           | 3.1 +0R   |           | 3.1 +0R   |           | 3.1 +0R   |           | 3.1 +0R   |           |
|                          |       | 8"                   | $q_a$   | $q_f$     | 2742      | 4387      | 2742      | 4387      | 2742      | 4387      | 2742      | 4387      | 2742      | 4387      | 2742      | 4387      | 2349      | 3758      | 1856      | 2969      | 1503      | 2405      |
|                          |       |                      | F   |           | 3.3 -0.1R |           | 3.3 -0.1R |           | 3.4 -0.1R |           | 3.4 +0R   |           | 3.4 +0R   |           | 3.4 +0R   |           | 3.4 +0R   |           | 3.4 +0R   |           | 3.4 +0R   |           |
|                          | 12"   | $q_a$                | $q_f$   | 2733      | 4387      | 2563      | 4229      | 2472      | 4078      | 2414      | 3984      | 2375      | 3920      | 2347      | 3873      | 2326      | 3758      | 1856      | 2969      | 1503      | 2405      |           |
|                          |       | F                    |   | 3.7 -0.2R |           | 3.8 -0.1R |           | 3.9 -0.1R |           | 3.9 -0.1R |           | 3.9 -0.1R |           | 3.9 -0.1R |           | 3.9 -0.1R |           | 3.9 -0.1R |           | 3.9 -0.1R |           | 3.9 -0.1R |
|                          | 18"   | $q_a$                | $q_f$   | 2387      | 4387      | 2039      | 3365      | 2072      | 3419      | 1914      | 3158      | 1803      | 2975      | 1858      | 3066      | 1781      | 2939      | 1720      | 2838      | 1503      | 2405      |           |
|                          |       | F                    |   | 4.3 -0.3R |           | 4.5 -0.3R |           | 4.5 -0.2R |           | 4.6 -0.2R |           | 4.6 -0.2R |           | 4.7 -0.2R |           | 4.7 -0.1R |           | 4.7 -0.1R |           | 4.7 -0.1R |           | 4.7 -0.1R |
|                          | 24"   | $q_a$                | $q_f$   | 1972      | 3253      | 1730      | 2854      | 1602      | 2643      | 1523      | 2513      | 1469      | 2424      | 1431      | 2361      | 1401      | 2312      | 1379      | 2275      | 1360      | 2244      |           |
|                          |       | F                    |   | 4.8 -0.5R |           | 5 -0.4R   |           | 5.2 -0.4R |           | 5.3 -0.3R |           | 5.3 -0.3R |           | 5.4 -0.3R |           | 5.4 -0.2R |           | 5.5 -0.2R |           | 5.5 -0.2R |           | 5.5 -0.2R |
|                          | 18 ga | 4"                   | $q_a$   | $q_f$     | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1694      | 2711      | 1339      | 2142      | 1084      | 1735      |
|                          |       |                      | F   |           | 3.5 +0R   |           | 3.5 +0R   |           | 3.5 +0R   |           | 3.5 +0R   |           | 3.5 +0R   |           | 3.5 +0R   |           | 3.5 +0R   |           | 3.5 +0R   |           | 3.5 +0R   |           |
|                          |       | 6"                   | $q_a$   | $q_f$     | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1694      | 2711      | 1339      | 2142      | 1084      | 1735      |
|                          |       |                      | F   |           | 3.7 -0.1R |           | 3.8 +0R   |           | 3.8 +0R   |           | 3.8 +0R   |           | 3.8 +0R   |           | 3.8 +0R   |           | 3.8 +0R   |           | 3.8 +0R   |           | 3.8 +0R   |           |
|                          |       | 8"                   | $q_a$   | $q_f$     | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1694      | 2711      | 1339      | 2142      | 1084      | 1735      |
|                          |       |                      | F   |           | 4 -0.1R   |           | 4 -0.1R   |           | 4.1 -0.1R |           | 4.1 -0.1R |           | 4.1 +0R   |           | 4.1 +0R   |           | 4.1 +0R   |           | 4.1 +0R   |           | 4.1 +0R   |           |
|                          | 12"   | $q_a$                | $q_f$   | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1824      | 2918      | 1798      | 2918      | 1775      | 2918      | 1694      | 2711      | 1339      | 2142      | 1084      | 1735      |           |
|                          |       | F                    |   | 4.5 -0.2R |           | 4.6 -0.2R |           | 4.6 -0.1R |           | 4.6 -0.1R |           | 4.7 -0.1R |           | 4.7 -0.1R |           | 4.7 -0.1R |           | 4.7 -0.1R |           | 4.7 -0.1R |           | 4.7 -0.1R |
|                          | 18"   | $q_a$                | $q_f$   | 1824      | 2918      | 1550      | 2558      | 1571      | 2591      | 1447      | 2387      | 1360      | 2245      | 1401      | 2312      | 1341      | 2213      | 1294      | 2135      | 1084      | 1735      |           |
|                          |       | F                    |   | 5.1 -0.4R |           | 5.3 -0.3R |           | 5.4 -0.3R |           | 5.5 -0.2R |           | 5.5 -0.2R |           | 5.5 -0.2R |           | 5.6 -0.2R |           | 5.6 -0.1R |           | 5.6 -0.1R |           | 5.6 -0.1R |
|                          | 24"   | $q_a$                | $q_f$   | 1509      | 2490      | 1316      | 2171      | 1214      | 2003      | 1151      | 1899      | 1109      | 1829      | 1078      | 1778      | 1055      | 1740      | 1036      | 1710      | 1022      | 1686      |           |
|                          |       | F                    |   | 5.7 -0.6R |           | 5.9 -0.5R |           | 6.1 -0.4R |           | 6.2 -0.4R |           | 6.3 -0.3R |           | 6.3 -0.3R |           | 6.4 -0.3R |           | 6.4 -0.2R |           | 6.4 -0.2R |           | 6.4 -0.2R |
| 20 ga                    | 4"    | $q_a$                | $q_f$   | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 879       | 1406      | 712       | 1139      |           |
|                          |       | F                    |   | 4.5 +0R   |           | 4.5 +0R   |           | 4.5 +0R   |           | 4.5 +0R   |           | 4.5 +0R   |           | 4.5 +0R   |           | 4.5 +0R   |           | 4.5 +0R   |           | 4.5 +0R   |           | 4.5 +0R   |
|                          | 6"    | $q_a$                | $q_f$   | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 879       | 1406      | 712       | 1139      |           |
|                          |       | F                    |   | 4.8 -0.1R |           | 4.8 -0.1R |           | 4.9 +0R   |           | 4.9 +0R   |           | 4.9 +0R   |           | 4.9 +0R   |           | 4.9 +0R   |           | 4.9 +0R   |           | 4.9 +0R   |           | 4.9 +0R   |
|                          | 8"    | $q_a$                | $q_f$   | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 879       | 1406      | 712       | 1139      |           |
|                          |       | F                    |   | 5.1 -0.1R |           | 5.2 -0.1R |           | 5.2 -0.1R |           | 5.2 -0.1R |           | 5.2 -0.1R |           | 5.2 +0R   |           | 5.2 +0R   |           | 5.2 +0R   |           | 5.2 +0R   |           | 5.2 +0R   |
| 12"                      | $q_a$ | $q_f$                | 1080  | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 1080      | 1728      | 879       | 1406      | 712       | 1139      |           |           |
|                          | F     |                      | 5.7 -0.2R   |           | 5.8 -0.2R |           | 5.8 -0.2R |           | 5.9 -0.1R |           | 5.9 -0.1R |           | 5.9 -0.1R |           | 5.9 -0.1R |           | 5.9 -0.1R |           | 5.9 -0.1R |           | 5.9 -0.1R |           |
| 18"                      | $q_a$ | $q_f$                | 1080  | 1728      | 995       | 1642      | 1016      | 1677      | 942       | 1554      | 890       | 1469      | 919       | 1516      | 882       | 1456      | 853       | 1406      | 712       | 1139      |           |           |
|                          | F     |                      | 6.4 -0.4R   |           | 6.6 -0.4R |           | 6.7 -0.3R |           | 6.8 -0.3R |           | 6.8 -0.2R |           | 6.9 -0.2R |           | 6.9 -0.2R |           | 6.9 -0.2R |           | 6.9 -0.2R |           | 7 -0.2R   |           |
| 24"                      | $q_a$ | $q_f$                | 952   | 1572      | 844       | 1392      | 786       | 1297      | 750       | 1238      | 726       | 1198      | 709       | 1169      | 695       | 1147      | 685       | 1130      | 677       | 1117      |           |           |
|                          | F     |                      | 7 -0.6R   |           | 7.4 -0.6R |           | 7.5 -0.5R |           | 7.7 -0.4R |           | 7.8 -0.4R |           | 7.8 -0.3R |           | 7.9 -0.3R |           | 7.9 -0.3R |           | 7.9 -0.3R |           | 7.9 -0.3R |           |
| 22 ga                    | 4"    | $q_a$                | $q_f$   | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 673       | 1076      | 545       | 872       |           |
|                          |       | F                    |   | 5.3 +0R   |           | 5.3 +0R   |           | 5.4 +0R   |           | 5.4 +0R   |           | 5.4 +0R   |           | 5.4 +0R   |           | 5.4 +0R   |           | 5.4 +0R   |           | 5.4 +0R   |           | 5.4 +0R   |
|                          | 6"    | $q_a$                | $q_f$   | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 673       | 1076      | 545       | 872       |           |
|                          |       | F                    |   | 5.7 -0.1R |           | 5.7 -0.1R |           | 5.7 +0R   |           | 5.7 +0R   |           | 5.7 +0R   |           | 5.7 +0R   |           | 5.8 +0R   |           | 5.8 +0R   |           | 5.8 +0R   |           | 5.8 +0R   |
|                          | 8"    | $q_a$                | $q_f$   | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 673       | 1076      | 545       | 872       |           |
|                          |       | F                    |   | 6 -0.1R   |           | 6.1 -0.1R |           | 6.1 -0.1R |           | 6.1 -0.1R |           | 6.1 -0.1R |           | 6.1 +0R   |           | 6.1 +0R   |           | 6.1 +0R   |           | 6.1 +0R   |           | 6.1 +0R   |
| 12"                      | $q_a$ | $q_f$                | 771   | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 771       | 1233      | 673       | 1076      | 545       | 872       |           |           |
|                          | F     |                      | 6.6 -0.3R   |           | 6.7 -0.2R |           | 6.8 -0.2R |           | 6.8 -0.1R |           | 6.9 -0.1R |           | 6.9 -0.1R |           | 6.9 -0.1R |           | 6.9 -0.1R |           | 6.9 -0.1R |           | 6.9 -0.1R |           |
| 18"                      | $q_a$ | $q_f$                | 771   | 1233      | 752       | 1233      | 770       | 1233      | 717       | 1183      | 679       | 1121      | 702       | 1158      | 675       | 1114      | 654       | 1076      | 545       | 872       |           |           |
|                          | F     |                      | 7.4 -0.5R   |           | 7.6 -0.4R |           | 7.8 -0.3R |           | 7.8 -0.3R |           | 7.9 -0.2R |           | 7.9 -0.2R |           | 8 -0.2R   |           | 8 -0.2R   |           | 8 -0.2R   |           | 8 -0.2R   |           |
| 24"                      | $q_a$ | $q_f$                | 713   | 1176      | 637       | 1051      | 597       | 985       | 572       | 944       | 555       | 916       | 543       | 896       | 534       | 881       | 526       | 869       | 521       | 859       |           |           |
|                          | F     |                      | 8.1 -0.7R   |           | 8.5 -0.6R |           | 8.7 -0.5R |           | 8.8 -0.5R |           | 8.9 -0.4R |           | 9 -0.4R   |           | 9 -0.3R   |           | 9.1 -0.3R |           | 9.1 -0.3R |           | 9.1 -0.3R |           |

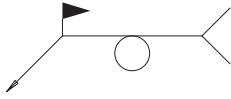
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Support Attachment: 0.5" Effective Dia. Arc Spot Weld

Side Seam Attachment: Top Seam Side-Lap Weld

## Arc Spot/Seam Welds to Supports with Button Punch Side Seam Attachments

Diaphragm Shear in pounds per linear foot (plf)

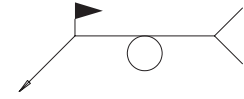


| Support Fastener Pattern | Gage  | Seam Attach. Spacing | Allowable Shear ( $q_a$ ) (plf), Factored Shear ( $q_f$ ) (plf), and Flexibility Factor (F) ( $10^6$ in/lbs) |            |             |             |             |             |             |             |             |            |     |          |     |          |     |          |     |          |     |     |  |  |
|--------------------------|-------|----------------------|--|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|-----|----------|-----|----------|-----|----------|-----|----------|-----|-----|--|--|
|                          |       |                      | Span →   | 4' - 0"    |             | 6' - 0"     |             | 8' - 0"     |             | 10' - 0"    |             | 12' - 0"   |     | 14' - 0" |     | 16' - 0" |     | 18' - 0" |     | 20' - 0" |     |     |  |  |
| 32/5                     | 16 ga | 4"                   | $q_a$  | $q_f$      | 972         | 1603        | 655         | 1082        | 517         | 852         | 433         | 715        | 378 | 623      | 338 | 558      | 308 | 509      | 285 | 471      | 267 | 440 |  |  |
|                          |       |                      | F  | 7.9 -2R    | 9.4 -2.3R   | 10.6 -2.4R  | 11.4 -2.4R  | 12.1 -2.4R  | 12.6 -2.4R  | 13.1 -2.3R  | 13.5 -2.2R  | 13.8 -2.2R |     |          |     |          |     |          |     |          |     |     |  |  |
|                          |       | 6"                   | $q_a$  | $q_f$      | 938         | 1548        | 622         | 1027        | 483         | 797         | 400         | 660        | 344 | 568      | 305 | 503      | 275 | 454      | 252 | 416      | 233 | 385 |  |  |
|                          |       |                      | F  | 8.7 -2.5R  | 10.7 -3R    | 12.3 -3.4R  | 13.6 -3.5R  | 14.7 -3.6R  | 15.6 -3.7R  | 16.4 -3.7R  | 17 -3.6R    | 17.6 -3.6R |     |          |     |          |     |          |     |          |     |     |  |  |
|                          |       | 8"                   | $q_a$  | $q_f$      | 922         | 1521        | 605         | 999         | 467         | 770         | 383         | 632        | 328 | 541      | 288 | 475      | 258 | 426      | 235 | 388      | 217 | 357 |  |  |
|                          |       |                      | F  | 9.1 -2.8R  | 11.6 -3.5R  | 13.5 -4R    | 15.2 -4.4R  | 16.6 -4.6R  | 17.8 -4.8R  | 18.9 -4.8R  | 19.8 -4.9R  | 20.6 -4.9R |     |          |     |          |     |          |     |          |     |     |  |  |
|                          | 12"   | $q_a$                | $q_f$  | 905        | 1493        | 589         | 972         | 450         | 742         | 367         | 605         | 311        | 513 | 271      | 448 | 242      | 399 | 218      | 361 | 200      | 330 |     |  |  |
|                          |       | F                    | 9.7 -3.1R  | 12.6 -4.2R | 15.1 -5R    | 17.3 -5.6R  | 19.2 -6.1R  | 20.9 -6.4R  | 22.4 -6.7R  | 23.8 -6.9R  | 25 -7.1R    |            |     |          |     |          |     |          |     |          |     |     |  |  |
|                          | 18"   | $q_a$                | $q_f$  | 897        | 1493        | 578         | 953         | 442         | 729         | 357         | 588         | 300        | 495 | 262      | 432 | 231      | 382 | 207      | 342 | 190      | 313 |     |  |  |
|                          |       | F                    | 10.1 -3.4R   | 13.4 -4.7R | 16.3 -5.8R  | 19 -6.7R    | 21.5 -7.4R  | 23.7 -8.1R  | 25.7 -8.6R  | 27.6 -9.1R  | 29.4 -9.5R  |            |     |          |     |          |     |          |     |          |     |     |  |  |
|                          | 24"   | $q_a$                | $q_f$  | 888        | 1466        | 572         | 944         | 433         | 715         | 350         | 577         | 294        | 486 | 255      | 420 | 225      | 371 | 202      | 333 | 183      | 302 |     |  |  |
|                          |       | F                    | 10.3 -3.5R   | 13.8 -5R   | 17 -6.2R    | 20.1 -7.3R  | 22.8 -8.3R  | 25.4 -9.2R  | 27.9 -9.9R  | 30.1 -10.6R | 32.2 -11.2R |            |     |          |     |          |     |          |     |          |     |     |  |  |
|                          | 18 ga | 4"                   | $q_a$  | $q_f$      | 777         | 1282        | 536         | 885         | 427         | 705         | 362         | 597        | 318 | 525      | 287 | 473      | 264 | 435      | 245 | 405      | 231 | 381 |  |  |
|                          |       |                      | F  | 9.2 -2.3R  | 10.9 -2.6R  | 12.1 -2.7R  | 13.1 -2.7R  | 13.8 -2.7R  | 14.5 -2.7R  | 15 -2.6R    | 15.4 -2.5R  | 15.7 -2.4R |     |          |     |          |     |          |     |          |     |     |  |  |
|                          |       | 6"                   | $q_a$  | $q_f$      | 743         | 1227        | 503         | 830         | 394         | 650         | 328         | 542        | 285 | 470      | 254 | 418      | 230 | 380      | 212 | 350      | 197 | 326 |  |  |
|                          |       |                      | F  | 10 -2.8R   | 12.3 -3.4R  | 14.1 -3.8R  | 15.6 -4R    | 16.8 -4.1R  | 17.8 -4.1R  | 18.6 -4.1R  | 19.3 -4.1R  | 20 -4R     |     |          |     |          |     |          |     |          |     |     |  |  |
|                          |       | 8"                   | $q_a$  | $q_f$      | 727         | 1199        | 486         | 802         | 377         | 622         | 312         | 514        | 268 | 442      | 237 | 391      | 214 | 352      | 195 | 322      | 181 | 298 |  |  |
|                          |       |                      | F  | 10.5 -3.1R | 13.2 -3.9R  | 15.5 -4.5R  | 17.3 -4.9R  | 18.9 -5.2R  | 20.2 -5.3R  | 21.4 -5.4R  | 22.4 -5.5R  | 23.3 -5.5R |     |          |     |          |     |          |     |          |     |     |  |  |
|                          | 12"   | $q_a$                | $q_f$  | 710        | 1172        | 469         | 775         | 360         | 595         | 295         | 487         | 251        | 415 | 220      | 363 | 197      | 325 | 179      | 295 | 164      | 271 |     |  |  |
|                          |       | F                    | 11.1 -3.5R   | 14.4 -4.7R | 17.2 -5.5R  | 19.6 -6.2R  | 21.8 -6.8R  | 23.7 -7.2R  | 25.4 -7.5R  | 26.9 -7.7R  | 28.3 -7.9R  |            |     |          |     |          |     |          |     |          |     |     |  |  |
|                          | 18"   | $q_a$                | $q_f$  | 702        | 1172        | 458         | 756         | 352         | 581         | 285         | 470         | 240        | 396 | 211      | 348 | 186      | 308 | 168      | 277 | 154      | 254 |     |  |  |
|                          |       | F                    | 11.6 -3.8R   | 15.2 -5.2R | 18.6 -6.4R  | 21.6 -7.5R  | 24.3 -8.3R  | 26.8 -9R    | 29.1 -9.7R  | 31.2 -10.2R | 33.2 -10.6R |            |     |          |     |          |     |          |     |          |     |     |  |  |
|                          | 24"   | $q_a$                | $q_f$  | 693        | 1144        | 453         | 747         | 344         | 567         | 278         | 459         | 235        | 387 | 204      | 336 | 180      | 297 | 162      | 267 | 147      | 243 |     |  |  |
|                          |       | F                    | 11.8 -4R   | 15.7 -5.6R | 19.4 -7R    | 22.7 -8.2R  | 25.8 -9.3R  | 28.8 -10.3R | 31.5 -11.1R | 34 -11.8R   | 36.4 -12.5R |            |     |          |     |          |     |          |     |          |     |     |  |  |
| 20 ga                    | 4"    | $q_a$                | $q_f$  | 493        | 813         | 357         | 590         | 293         | 483         | 254         | 420         | 229        | 377 | 210      | 347 | 196      | 324 | 186      | 307 | 177      | 292 |     |  |  |
|                          |       | F                    | 11.1 -2.6R   | 13.1 -3R   | 14.5 -3.1R  | 15.6 -3.2R  | 16.5 -3.1R  | 17.2 -3.1R  | 17.8 -3R    | 18.2 -2.9R  | 18.7 -2.8R  |            |     |          |     |          |     |          |     |          |     |     |  |  |
|                          | 6"    | $q_a$                | $q_f$  | 459        | 758         | 324         | 535         | 260         | 428         | 221         | 365         | 195        | 322 | 177      | 292 | 163      | 269 | 152      | 252 | 144      | 237 |     |  |  |
|                          |       | F                    | 12.1 -3.2R   | 14.7 -3.9R | 16.8 -4.3R  | 18.5 -4.6R  | 19.9 -4.7R  | 21 -4.7R    | 22 -4.7R    | 22.8 -4.7R  | 23.5 -4.6R  |            |     |          |     |          |     |          |     |          |     |     |  |  |
|                          | 8"    | $q_a$                | $q_f$  | 443        | 730         | 307         | 507         | 243         | 401         | 204         | 337         | 179        | 295 | 160      | 264 | 146      | 242 | 136      | 224 | 127      | 210 |     |  |  |
|                          |       | F                    | 12.6 -3.6R   | 15.8 -4.6R | 18.3 -5.2R  | 20.5 -5.7R  | 22.3 -6R    | 23.9 -6.1R  | 25.2 -6.3R  | 26.4 -6.3R  | 27.4 -6.3R  |            |     |          |     |          |     |          |     |          |     |     |  |  |
| 12"                      | $q_a$ | $q_f$                | 426  | 703        | 291         | 480         | 226         | 373         | 188         | 310         | 162         | 267        | 144 | 237      | 130 | 214      | 119 | 197      | 111 | 182      |     |     |  |  |
|                          | F     | 13.3 -4R             | 17.1 -5.4R   | 20.3 -6.4R | 23.1 -7.2R  | 25.6 -7.8R  | 27.8 -8.3R  | 29.8 -8.7R  | 31.6 -8.9R  | 33.1 -9.1R  |             |            |     |          |     |          |     |          |     |          |     |     |  |  |
| 18"                      | $q_a$ | $q_f$                | 418  | 703        | 280         | 461         | 218         | 360         | 178         | 293         | 151         | 249        | 134 | 221      | 119 | 197      | 108 | 178      | 101 | 166      |     |     |  |  |
|                          | F     | 13.8 -4.4R           | 18.1 -6R   | 21.9 -7.4R | 25.4 -8.6R  | 28.6 -9.6R  | 31.4 -10.4R | 34.1 -11.1R | 36.5 -11.7R | 38.8 -12.2R |             |            |     |          |     |          |     |          |     |          |     |     |  |  |
| 24"                      | $q_a$ | $q_f$                | 409  | 675        | 274         | 452         | 210         | 346         | 171         | 282         | 145         | 240        | 127 | 209      | 113 | 187      | 102 | 169      | 94  | 155      |     |     |  |  |
|                          | F     | 14.1 -4.6R           | 18.7 -6.4R   | 22.9 -8.1R | 26.7 -9.5R  | 30.3 -10.7R | 33.7 -11.8R | 36.8 -12.8R | 39.7 -13.7R | 42.5 -14.4R |             |            |     |          |     |          |     |          |     |          |     |     |  |  |
| 22 ga                    | 4"    | $q_a$                | $q_f$  | 379        | 625         | 285         | 470         | 239         | 394         | 211         | 348         | 192        | 317 | 179      | 296 | 169      | 279 | 162      | 267 | 155      | 256 |     |  |  |
|                          |       | F                    | 12.5 -2.9R   | 14.7 -3.3R | 16.3 -3.4R  | 17.5 -3.5R  | 18.5 -3.4R  | 19.2 -3.4R  | 19.9 -3.3R  | 20.4 -3.2R  | 20.8 -3.1R  |            |     |          |     |          |     |          |     |          |     |     |  |  |
|                          | 6"    | $q_a$                | $q_f$  | 345        | 570         | 251         | 415         | 205         | 339         | 178         | 293         | 159        | 262 | 146      | 241 | 136      | 224 | 128      | 212 | 122      | 201 |     |  |  |
|                          |       | F                    | 13.6 -3.5R   | 16.5 -4.3R | 18.8 -4.7R  | 20.6 -5R    | 22.2 -5.1R  | 23.4 -5.2R  | 24.5 -5.2R  | 25.4 -5.1R  | 26.2 -5.1R  |            |     |          |     |          |     |          |     |          |     |     |  |  |
|                          | 8"    | $q_a$                | $q_f$  | 329        | 542         | 235         | 387         | 189         | 311         | 161         | 265         | 142        | 235 | 129      | 213 | 119      | 197 | 112      | 184 | 105      | 174 |     |  |  |
|                          |       | F                    | 14.3 -3.9R   | 17.7 -5R   | 20.5 -5.7R  | 22.8 -6.2R  | 24.8 -6.5R  | 26.5 -6.7R  | 28 -6.9R    | 29.3 -6.9R  | 30.4 -6.9R  |            |     |          |     |          |     |          |     |          |     |     |  |  |
| 12"                      | $q_a$ | $q_f$                | 312  | 515        | 218         | 360         | 172         | 284         | 144         | 238         | 126         | 207        | 113 | 186      | 103 | 169      | 95  | 157      | 89  | 146      |     |     |  |  |
|                          | F     | 15 -4.4R             | 19.1 -5.9R   | 22.6 -7R   | 25.7 -7.9R  | 28.5 -8.6R  | 30.9 -9.1R  | 33 -9.5R    | 35 -9.8R    | 36.7 -10R   |             |            |     |          |     |          |     |          |     |          |     |     |  |  |
| 18"                      | $q_a$ | $q_f$                | 304  | 515        | 207         | 342         | 164         | 270         | 134         | 221         | 115         | 189        | 103 | 170      | 92  | 152      | 84  | 138      | 79  | 130      |     |     |  |  |
|                          | F     | 15.6 -4.8R           | 20.2 -6.6R   | 24.4 -8.1R | 28.2 -9.4R  | 31.7 -10.5R | 34.8 -11.4R | 37.7 -12.2R | 40.4 -12.8R | 42.9 -13.4R |             |            |     |          |     |          |     |          |     |          |     |     |  |  |
| 24"                      | $q_a$ | $q_f$                | 295  | 487        | 201         | 332         | 155         | 256         | 128         | 210         | 109         | 180        | 96  | 158      | 86  | 142      | 78  | 129      | 72  | 119      |     |     |  |  |
|                          | F     | 15.9 -5R             | 20.9 -7R   | 25.4 -8.8R | 29.7 -10.4R | 33.6 -11.8R | 37.3 -13R   | 40.7 -14R   | 43.9 -15R   | 46.9 -15.8R |             |            |     |          |     |          |     |          |     |          |     |     |  |  |

# 3.8 N-32

## Arc Spot/Seam Welds to Supports with No. 12 Self-Drilling Side Lap Screws

Diaphragm Shear in pounds per linear foot (plf)



| Support Fastener Pattern | Gage  | Seam Attach. Spacing | Allowable Shear ( $q_a$ ) (plf), Factored Shear ( $q_f$ ) (plf), and Flexibility Factor (F) ( $10^{-6}$ in/lbs) |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |
|--------------------------|-------|----------------------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
|                          |       |                      | Span →  | 4' - 0"    |            | 6' - 0"    |            | 8' - 0"    |            | 10' - 0"   |            | 12' - 0"   |            | 14' - 0"   |            | 16' - 0"   |            | 18' - 0"   |            | 20' - 0"   |            |            |
| 32/5                     | 16 ga | 4"                   | $q_a$   | $q_f$      | 2389       | 3942       | 2184       | 3604       | 2075       | 3423       | 2007       | 3311       | 1960       | 3235       | 1927       | 3179       | 1901       | 3137       | 1856       | 2969       | 1503       | 2405       |
|                          |       |                      | F   |            | 3.6 -0.2R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.7 -0.1R  | 3.8 +0R    | 3.8 +0R    |
|                          |       | 6"                   | $q_a$   | $q_f$      | 1973       | 3256       | 1731       | 2857       | 1604       | 2646       | 1525       | 2516       | 1471       | 2427       | 1432       | 2364       | 1403       | 2315       | 1380       | 2278       | 1362       | 2247       |
|                          |       |                      | F   |            | 4.1 -0.3R  | 4.3 -0.2R  | 4.3 -0.2R  | 4.3 -0.2R  | 4.4 -0.2R  | 4.4 -0.1R  | 4.4 -0.1R  | 4.4 -0.1R  | 4.4 -0.1R  | 4.4 -0.1R  | 4.4 -0.1R  | 4.4 -0.1R  | 4.4 -0.1R  | 4.4 -0.1R  | 4.4 -0.1R  | 4.4 -0.1R  | 4.4 -0.1R  | 4.5 -0.1R  |
|                          |       | 8"                   | $q_a$   | $q_f$      | 1738       | 2868       | 1479       | 2440       | 1342       | 2214       | 1258       | 2076       | 1201       | 1982       | 1160       | 1915       | 1130       | 1864       | 1105       | 1824       | 1086       | 1792       |
|                          |       |                      | F   |            | 4.6 -0.4R  | 4.8 -0.4R  | 4.9 -0.3R  | 5 -0.3R    | 5 -0.2R    | 5 -0.2R    | 5 -0.2R    | 5 -0.2R    | 5 -0.2R    | 5 -0.2R    | 5 -0.2R    | 5 -0.2R    | 5 -0.2R    | 5 -0.2R    | 5 -0.2R    | 5 -0.2R    | 5 -0.2R    | 5.1 -0.2R  |
|                          | 12"   | $q_a$                | $q_f$   | 1486       | 2452       | 1174       | 1937       | 1035       | 1708       | 952        | 1570       | 896        | 1479       | 857        | 1413       | 827        | 1364       | 804        | 1326       | 785        | 1295       |            |
|                          |       | F                    |   | 5.3 -0.7R  | 5.7 -0.6R  | 6 -0.6R    | 6.1 -0.5R  | 6.2 -0.5R  | 6.3 -0.4R  | 6.3 -0.4R  | 6.3 -0.4R  | 6.3 -0.4R  | 6.3 -0.4R  | 6.3 -0.4R  | 6.3 -0.4R  | 6.3 -0.4R  | 6.3 -0.4R  | 6.3 -0.4R  | 6.3 -0.4R  | 6.3 -0.4R  | 6.4 -0.4R  | 6.5 -0.3R  |
|                          | 18"   | $q_a$                | $q_f$   | 1336       | 2452       | 968        | 1597       | 880        | 1453       | 766        | 1264       | 690        | 1139       | 680        | 1122       | 634        | 1045       | 597        | 986        | 600        | 989        |            |
|                          |       | F                    |   | 6.2 -1.1R  | 6.9 -1.1R  | 7.3 -1R    | 7.6 -0.9R  | 7.8 -0.9R  | 8 -0.8R    | 8 -0.8R    | 8 -0.8R    | 8 -0.8R    | 8 -0.8R    | 8 -0.8R    | 8 -0.8R    | 8 -0.8R    | 8 -0.8R    | 8 -0.8R    | 8 -0.8R    | 8 -0.8R    | 8.2 -0.7R  | 8.3 -0.7R  |
|                          | 24"   | $q_a$                | $q_f$   | 1181       | 1949       | 865        | 1427       | 726        | 1198       | 643        | 1060       | 587        | 969        | 547        | 903        | 518        | 854        | 494        | 816        | 476        | 785        |            |
|                          |       | F                    |   | 6.8 -1.4R  | 7.8 -1.5R  | 8.4 -1.4R  | 8.9 -1.4R  | 9.2 -1.3R  | 9.4 -1.2R  | 9.4 -1.2R  | 9.4 -1.2R  | 9.4 -1.2R  | 9.4 -1.2R  | 9.4 -1.2R  | 9.4 -1.2R  | 9.4 -1.2R  | 9.4 -1.2R  | 9.4 -1.2R  | 9.4 -1.2R  | 9.4 -1.2R  | 9.8 -1.1R  | 10 -1R     |
|                          | 18 ga | 4"                   | $q_a$   | $q_f$      | 1793       | 2918       | 1625       | 2681       | 1535       | 2532       | 1479       | 2440       | 1441       | 2378       | 1414       | 2332       | 1393       | 2298       | 1339       | 2142       | 1084       | 1735       |
|                          |       |                      | F   |            | 4.3 -0.2R  | 4.4 -0.1R  | 4.4 -0.1R  | 4.5 -0.1R  | 4.5 -0.1R  | 4.5 -0.1R  | 4.5 -0.1R  | 4.5 -0.1R  | 4.5 -0.1R  | 4.5 -0.1R  | 4.5 -0.1R  | 4.5 -0.1R  | 4.5 -0.1R  | 4.5 -0.1R  | 4.5 -0.1R  | 4.5 -0.1R  | 4.5 -0.1R  | 4.5 +0R    |
|                          |       | 6"                   | $q_a$   | $q_f$      | 1485       | 2450       | 1290       | 2128       | 1187       | 1958       | 1123       | 1853       | 1080       | 1783       | 1049       | 1731       | 1026       | 1693       | 1008       | 1663       | 993        | 1638       |
|                          |       |                      | F   |            | 4.9 -0.3R  | 5.1 -0.3R  | 5.1 -0.2R  | 5.2 -0.2R  | 5.2 -0.2R  | 5.2 -0.2R  | 5.2 -0.2R  | 5.2 -0.2R  | 5.2 -0.2R  | 5.2 -0.2R  | 5.2 -0.2R  | 5.2 -0.2R  | 5.2 -0.2R  | 5.2 -0.2R  | 5.2 -0.2R  | 5.2 -0.2R  | 5.2 -0.2R  | 5.3 -0.1R  |
|                          |       | 8"                   | $q_a$   | $q_f$      | 1313       | 2166       | 1099       | 1813       | 990        | 1634       | 925        | 1526       | 881        | 1454       | 850        | 1402       | 827        | 1364       | 808        | 1333       | 792        | 1308       |
|                          |       |                      | F   |            | 5.4 -0.5R  | 5.7 -0.4R  | 5.8 -0.3R  | 5.9 -0.3R  | 6 -0.3R    | 6 -0.3R    | 6 -0.3R    | 6 -0.3R    | 6 -0.3R    | 6 -0.3R    | 6 -0.3R    | 6 -0.3R    | 6 -0.3R    | 6 -0.3R    | 6 -0.3R    | 6 -0.3R    | 6 -0.3R    | 6.1 -0.2R  |
|                          | 12"   | $q_a$                | $q_f$   | 1119       | 1846       | 878        | 1449       | 769        | 1269       | 704        | 1161       | 660        | 1089       | 629        | 1038       | 606        | 999        | 587        | 969        | 573        | 945        |            |
|                          |       | F                    |   | 6.3 -0.8R  | 6.7 -0.7R  | 7 -0.6R    | 7.2 -0.6R  | 7.3 -0.5R  | 7.4 -0.5R  | 7.4 -0.5R  | 7.4 -0.5R  | 7.4 -0.5R  | 7.4 -0.5R  | 7.4 -0.5R  | 7.4 -0.5R  | 7.4 -0.5R  | 7.4 -0.5R  | 7.4 -0.5R  | 7.4 -0.5R  | 7.4 -0.5R  | 7.5 -0.4R  | 7.5 -0.4R  |
|                          | 18"   | $q_a$                | $q_f$   | 1008       | 1846       | 731        | 1206       | 659        | 1087       | 571        | 942        | 513        | 846        | 503        | 829        | 467        | 771        | 440        | 726        | 440        | 726        |            |
|                          |       | F                    |   | 7.2 -1.2R  | 8 -1.2R    | 8.5 -1.1R  | 8.8 -1R    | 9 -1R      | 9 -1R      | 9 -1R      | 9 -1R      | 9 -1R      | 9 -1R      | 9 -1R      | 9 -1R      | 9 -1R      | 9 -1R      | 9 -1R      | 9 -1R      | 9 -1R      | 9 -1R      | 9.6 -0.7R  |
|                          | 24"   | $q_a$                | $q_f$   | 898        | 1481       | 657        | 1084       | 548        | 904        | 483        | 796        | 439        | 724        | 408        | 673        | 385        | 634        | 366        | 604        | 352        | 580        |            |
|                          |       | F                    |   | 7.9 -1.6R  | 9 -1.6R    | 9.7 -1.6R  | 10.2 -1.5R | 10.6 -1.5R | 10.9 -1.4R | 10.9 -1.4R | 10.9 -1.4R | 10.9 -1.4R | 10.9 -1.4R | 10.9 -1.4R | 10.9 -1.4R | 10.9 -1.4R | 10.9 -1.4R | 10.9 -1.4R | 10.9 -1.4R | 10.9 -1.4R | 10.9 -1.4R | 11.5 -1.2R |
| 20 ga                    | 4"    | $q_a$                | $q_f$   | 1080       | 1728       | 1014       | 1673       | 964        | 1590       | 932        | 1538       | 911        | 1503       | 895        | 1477       | 883        | 1458       | 874        | 1406       | 712        | 1139       |            |
|                          |       | F                    |   | 5.5 -0.2R  | 5.6 -0.2R  | 5.6 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  | 5.7 -0.1R  |
|                          | 6"    | $q_a$                | $q_f$   | 916        | 1511       | 804        | 1326       | 745        | 1229       | 708        | 1169       | 683        | 1128       | 666        | 1098       | 652        | 1076       | 641        | 1058       | 633        | 1044       |            |
|                          |       | F                    |   | 6.2 -0.4R  | 6.4 -0.3R  | 6.4 -0.3R  | 6.4 -0.3R  | 6.5 -0.2R  | 6.5 -0.2R  | 6.5 -0.2R  | 6.5 -0.2R  | 6.5 -0.2R  | 6.5 -0.2R  | 6.5 -0.2R  | 6.5 -0.2R  | 6.5 -0.2R  | 6.5 -0.2R  | 6.5 -0.2R  | 6.5 -0.2R  | 6.5 -0.2R  | 6.6 -0.1R  | 6.6 -0.1R  |
|                          | 8"    | $q_a$                | $q_f$   | 807        | 1331       | 686        | 1133       | 623        | 1028       | 584        | 964        | 558        | 921        | 539        | 890        | 525        | 866        | 514        | 848        | 505        | 833        |            |
|                          |       | F                    |   | 6.8 -0.6R  | 7 -0.5R    | 7.2 -0.4R  | 7.3 -0.3R  | 7.4 -0.3R  | 7.4 -0.3R  | 7.4 -0.3R  | 7.4 -0.3R  | 7.4 -0.3R  | 7.4 -0.3R  | 7.4 -0.3R  | 7.4 -0.3R  | 7.4 -0.3R  | 7.4 -0.3R  | 7.4 -0.3R  | 7.4 -0.3R  | 7.4 -0.3R  | 7.5 -0.2R  | 7.5 -0.2R  |
| 12"                      | $q_a$ | $q_f$                | 680   | 1123       | 545        | 899        | 481        | 793        | 442        | 729        | 416        | 687        | 398        | 657        | 384        | 634        | 373        | 616        | 365        | 602        |            |            |
|                          | F     |                      | 7.8 -0.9R   | 8.3 -0.8R  | 8.6 -0.7R  | 8.8 -0.7R  | 8.9 -0.6R  | 9 -0.5R    | 9 -0.5R    | 9 -0.5R    | 9 -0.5R    | 9 -0.5R    | 9 -0.5R    | 9 -0.5R    | 9 -0.5R    | 9 -0.5R    | 9 -0.5R    | 9 -0.5R    | 9 -0.5R    | 9.2 -0.5R  | 9.2 -0.4R  |            |
| 18"                      | $q_a$ | $q_f$                | 608   | 1123       | 449        | 741        | 409        | 674        | 356        | 587        | 320        | 529        | 316        | 521        | 294        | 486        | 278        | 458        | 279        | 460        |            |            |
|                          | F     |                      | 8.9 -1.4R   | 9.7 -1.4R  | 10.3 -1.3R | 10.7 -1.2R | 10.9 -1.1R | 11.2 -1R   | 11.2 -1R   | 11.2 -1R   | 11.2 -1R   | 11.2 -1R   | 11.2 -1R   | 11.2 -1R   | 11.2 -1R   | 11.2 -1R   | 11.2 -1R   | 11.2 -1R   | 11.2 -1R   | 11.5 -0.9R | 11.6 -0.8R |            |
| 24"                      | $q_a$ | $q_f$                | 537   | 885        | 401        | 662        | 337        | 556        | 298        | 492        | 272        | 450        | 254        | 419        | 240        | 397        | 230        | 379        | 221        | 365        |            |            |
|                          | F     |                      | 9.7 -1.8R   | 10.9 -1.9R | 11.7 -1.9R | 12.3 -1.8R | 12.7 -1.7R | 13.1 -1.6R | 13.3 -1.5R | 13.3 -1.5R | 13.3 -1.5R | 13.3 -1.5R | 13.3 -1.5R | 13.3 -1.5R | 13.3 -1.5R | 13.3 -1.5R | 13.3 -1.5R | 13.3 -1.5R | 13.3 -1.5R | 13.5 -1.4R | 13.7 -1.3R |            |
| 22 ga                    | 4"    | $q_a$                | $q_f$   | 771        | 1233       | 752        | 1233       | 717        | 1183       | 695        | 1147       | 680        | 1122       | 669        | 1104       | 661        | 1091       | 655        | 1076       | 545        | 872        |            |
|                          |       | F                    |   | 6.4 -0.2R  | 6.5 -0.2R  | 6.6 -0.1R  | 6.6 -0.1R  | 6.6 -0.1R  | 6.6 -0.1R  | 6.6 -0.1R  | 6.6 -0.1R  | 6.6 -0.1R  | 6.6 -0.1R  | 6.6 -0.1R  | 6.6 -0.1R  | 6.6 -0.1R  | 6.6 -0.1R  | 6.6 -0.1R  | 6.6 -0.1R  | 6.7 -0.1R  | 6.7 -0.1R  | 6.7 -0.1R  |
|                          | 6"    | $q_a$                | $q_f$   | 675        | 1114       | 596        | 984        | 554        | 915        | 529        | 872        | 511        | 843        | 498        | 822        | 489        | 807        | 481        | 794        | 475        | 784        |            |
|                          |       | F                    |   | 7.2 -0.4R  | 7.4 -0.3R  | 7.5 -0.3R  | 7.5 -0.2R  | 7.6 -0.2R  | 7.6 -0.2R  | 7.6 -0.2R  | 7.6 -0.2R  | 7.6 -0.2R  | 7.6 -0.2R  | 7.6 -0.2R  | 7.6 -0.2R  | 7.6 -0.2R  | 7.6 -0.2R  | 7.6 -0.2R  | 7.6 -0.2R  | 7.7 -0.1R  | 7.7 -0.1R  | 7.7 -0.1R  |
|                          | 8"    | $q_a$                | $q_f$   | 594        | 979        | 508        | 838        | 463        | 764        | 436        | 719        | 417        | 688        | 403        | 666        | 393        | 649        | 385        | 636        | 379        | 625        |            |
|                          |       | F                    |   | 7.8 -0.6R  | 8.1 -0.5R  | 8.3 -0.4R  | 8.4 -0.4R  | 8.5 -0.3R  | 8.5 -0.3R  | 8.5 -0.3R  | 8.5 -0.3R  | 8.5 -0.3R  | 8.5 -0.3R  | 8.5 -0.3R  | 8.5 -0.3R  | 8.5 -0.3R  | 8.5 -0.3R  | 8.5 -0.3R  | 8.5 -0.3R  | 8.5 -0.3R  | 8.6 -0.2R  | 8.6 -0.2R  |
| 12"                      | $q_a$ | $q_f$                | 497   | 821        | 403        | 666        | 357        | 589        | 330        | 544        | 311        | 513        | 298        | 491        | 288        | 475        | 280        | 462        | 274        | 452        |            |            |
|                          | F     |                      | 8.9 -1R   | 9.4 -0.9R  | 9.8 -0.8R  | 10 -0.7R   | 10.2 -0.7R | 10.3 -0.6R | 10.3 -0.6R | 10.3 -0.6R | 10.3 -0.6R | 10.3 -0.6R | 10.3 -0.6R | 10.3 -0.6R | 10.3 -0.6R | 10.3 -0.6R | 10.3 -0.6R | 10.3 -0.6R | 10.3 -0.6R | 10.4 -0.5R | 10.5 -0.5R |            |
| 18"                      | $q_a$ | $q_f$                | 443   | 821        | 331        | 545        | 303        | 499        | 264        | 436        | 238        | 393        | 235        | 388        | 220        | 362        | 207        | 342        | 209        | 344        |            |            |
|                          | F     |                      | 10.1 -1.6R  | 11.1 -1.5R | 11.7 -1.4R | 12.1 -1.3R | 12.4 -1.2R | 12.6 -1.1R | 12.6 -1.1R | 12.6 -1.1R | 12.6 -1.1R | 12.6 -1.1R | 12.6 -1.1R | 12.6 -1.1R | 12.6 -1.1R | 12.6 -1.1R | 12.6 -1.1R | 12.6 -1.1R | 12.6 -1.1R | 13 -1R     | 13.1 -0.9R |            |
| 24"                      | $q_a$ | $q_f$                | 388   | 640        | 294        | 485        | 248        | 409        | 220        | 363        | 202        | 333        | 189        | 311        | 179        | 295        | 171        | 282        | 165        | 272        |            |            |
|                          | F     |                      | 11 -2R  | 12.3 -2.1R | 13.2 -2R   | 13.9 -1.9R | 14.3 -1.8R | 14.7 -1.7R | 15 -1.6R   | 15 -1.6R   | 15 -1.6R   | 15 -1.6R   | 15 -1.6R   | 15 -1.6R   | 15 -1.6R   | 15 -1.6R   | 15 -1.6R   | 15 -1.6R   | 15 -1.6R   | 15.2 -1.5R | 15.4 -1.5R |            |

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Support Attachment: 0.5" Effective Dia. Arc Spot Weld

Side Seam Attachment: #12 SD HWH Screw