

**N759**

**Restrained Beam**

**Cellular, Fluted-Cellular or Corrugated Deck  
Lightweight and Normal Weight Concrete  
CAFCO 300, 300ES, 300SB, 400**

| ASTM      |      |               |       |      |        |            |        |            |        |            |        |  |
|-----------|------|---------------|-------|------|--------|------------|--------|------------|--------|------------|--------|--|
| Desig.    | W/D  | Metric Desig. | M/D   | Hp/A | 1-Hour | 1-1/2 Hour | 2-Hour | 2-1/2 Hour | 3-Hour | 3-1/2 Hour | 4-Hour |  |
| W44 x 335 | 2.52 | W1120 x 498   | 148.7 | 52.4 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 5/8        | 11/16  |  |
| 290       | 2.2  | 432           | 129.8 | 60.0 | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 11/16      | 3/4    |  |
| 262       | 2    | 390           | 118.0 | 66.0 | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 11/16      | 13/16  |  |
| 230       | 1.77 | 342           | 104.4 | 74.6 | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 3/4        | 7/8    |  |
| W40 x 593 | 4.56 | W1000 x 883   | 269.0 | 28.9 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 7/16   |  |
| 503       | 3.93 | 748           | 231.9 | 33.6 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 7/16       | 1/2    |  |
| 431       | 3.42 | 641           | 201.8 | 38.6 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 9/16   |  |
| 397       | 3.15 | 591           | 185.9 | 41.9 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 9/16   |  |
| 392       | 3.38 | 583           | 199.4 | 39.1 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 9/16   |  |
| 372       | 2.98 | 554           | 175.8 | 44.3 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 5/8    |  |
| 362       | 2.9  | 539           | 171.1 | 45.5 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 9/16       | 5/8    |  |
| 331       | 2.9  | 493           | 171.1 | 45.5 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 9/16       | 5/8    |  |
| 327       | 2.89 | 487           | 170.5 | 45.7 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 9/16       | 5/8    |  |
| 324       | 2.61 | 482           | 154.0 | 50.6 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 9/16       | 11/16  |  |
| 297       | 2.41 | 442           | 142.2 | 54.8 | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 5/8        | 11/16  |  |
| 278       | 2.48 | 414           | 146.3 | 53.2 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 5/8        | 11/16  |  |
| 277       | 2.25 | 412           | 132.8 | 58.7 | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 5/8        | 3/4    |  |
| 264       | 2.36 | 393           | 139.2 | 55.9 | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 5/8        | 11/16  |  |
| 249       | 2.02 | 371           | 119.2 | 65.3 | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 11/16      | 13/16  |  |
| 235       | 2.1  | 350           | 123.9 | 62.9 | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 11/16      | 13/16  |  |
| 215       | 1.76 | 321           | 103.8 | 75.0 | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 3/4        | 7/8    |  |
| 211       | 1.9  | 314           | 112.1 | 69.5 | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 3/4        | 13/16  |  |
| 199       | 1.64 | 296           | 96.8  | 80.5 | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 13/16      | 15/16  |  |
| 183       | 1.66 | 272           | 97.9  | 79.5 | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 13/16      | 15/16  |  |
| 167       | 1.53 | 249           | 90.3  | 86.3 | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 7/8        | 1      |  |
| 149       | 1.37 | 222           | 80.8  | 96.4 | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 15/16      | 1-1/16 |  |
| W36 x 798 | 6.09 | W920 x 1188   | 359.3 | 21.7 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 3/8    |  |
| 650       | 5.08 | 967           | 299.7 | 26.0 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 3/8    |  |
| 527       | 4.22 | 784           | 249.0 | 31.3 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 7/16   |  |
| 439       | 3.57 | 653           | 210.6 | 37.0 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 7/16       | 1/2    |  |
| 393       | 3.25 | 585           | 191.8 | 40.6 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 9/16   |  |
| 359       | 2.97 | 534           | 175.2 | 44.4 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 5/8    |  |
| 328       | 2.73 | 488           | 161.1 | 48.4 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 9/16       | 5/8    |  |
| 300       | 2.5  | 446           | 147.5 | 52.8 | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 5/8        | 11/16  |  |
| 280       | 2.35 | 417           | 138.7 | 56.2 | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 5/8        | 11/16  |  |
| 260       | 2.18 | 387           | 128.6 | 60.6 | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 11/16      | 3/4    |  |
| 256       | 2.37 | 381           | 139.8 | 55.7 | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 5/8        | 11/16  |  |
| 245       | 2.08 | 365           | 122.7 | 63.5 | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 11/16      | 13/16  |  |
| 232       | 2.15 | 345           | 126.9 | 61.4 | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 11/16      | 3/4    |  |
| 230       | 1.95 | 342           | 115.1 | 67.7 | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 3/4        | 13/16  |  |

Note: Increased thicknesses may be applied when thickness applied to lower flange tips is reduced by one-half.  
Flutes may be "plugged" on both sides of beam; filling not required.

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**Cellular, Fluted-Cellular or Corrugated Deck  
Lightweight and Normal Weight Concrete  
CAFCO 300, 300ES, 300SB, 400**

| ASTM      |      |               |       |       |        |            |        |            |        |            |        |  |
|-----------|------|---------------|-------|-------|--------|------------|--------|------------|--------|------------|--------|--|
| Desig.    | W/D  | Metric Desig. | M/D   | Hp/A  | 1-Hour | 1-1/2 Hour | 2-Hour | 2-1/2 Hour | 3-Hour | 3-1/2 Hour | 4-Hour |  |
| W36 x 210 | 1.96 | W920 x 313    | 115.6 | 67.3  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 3/4        | 13/16  |  |
| 194       | 1.81 | 289           | 106.8 | 72.9  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 3/4        | 7/8    |  |
| 182       | 1.72 | 271           | 101.5 | 76.7  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 13/16      | 7/8    |  |
| 170       | 1.6  | 253           | 94.4  | 82.5  | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 13/16      | 15/16  |  |
| 160       | 1.51 | 238           | 89.1  | 87.4  | 5/16   | 3/8        | 7/16   | 9/16       | 9/16   | 7/8        | 1      |  |
| 150       | 1.43 | 223           | 84.4  | 92.3  | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 7/8        | 1      |  |
| 135       | 1.29 | 201           | 76.1  | 102.3 | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 15/16      | 1-1/8  |  |
|           |      |               |       |       |        |            |        |            |        |            |        |  |
| W33 x 387 | 3.31 | W840 x 576    | 195.3 | 39.9  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 9/16   |  |
| 354       | 3.05 | 527           | 180.0 | 43.3  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 9/16   |  |
| 318       | 2.77 | 473           | 163.4 | 47.7  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 9/16       | 5/8    |  |
| 291       | 2.55 | 433           | 150.5 | 51.8  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 9/16       | 11/16  |  |
| 263       | 2.33 | 392           | 137.5 | 56.7  | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 5/8        | 3/4    |  |
| 241       | 2.13 | 359           | 125.7 | 62.0  | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 11/16      | 3/4    |  |
| 221       | 1.97 | 329           | 116.2 | 67.0  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 11/16      | 13/16  |  |
| 201       | 1.79 | 299           | 105.6 | 73.7  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 3/4        | 7/8    |  |
| 169       | 1.7  | 251           | 100.3 | 77.6  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 13/16      | 15/16  |  |
| 152       | 1.53 | 226           | 90.3  | 86.3  | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 7/8        | 1      |  |
| 141       | 1.43 | 210           | 84.4  | 92.3  | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 7/8        | 1      |  |
| 130       | 1.32 | 193           | 77.9  | 100.0 | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 15/16      | 1-1/16 |  |
| 118       | 1.21 | 176           | 71.4  | 109.1 | 5/16   | 3/8        | 1/2    | 11/16      | 11/16  | 1          | 1-1/8  |  |
|           |      |               |       |       |        |            |        |            |        |            |        |  |
| W30 x 391 | 3.59 | W760 x 582    | 211.8 | 36.8  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 7/16       | 1/2    |  |
| 357       | 3.31 | 531           | 195.3 | 39.9  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 9/16   |  |
| 326       | 3.05 | 484           | 180.0 | 43.3  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 9/16   |  |
| 292       | 2.73 | 434           | 161.1 | 48.4  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 9/16       | 5/8    |  |
| 261       | 2.46 | 389           | 145.1 | 53.7  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 5/8        | 11/16  |  |
| 235       | 2.24 | 350           | 132.2 | 58.9  | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 5/8        | 3/4    |  |
| 211       | 2.01 | 314           | 118.6 | 65.7  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 11/16      | 13/16  |  |
| 191       | 1.85 | 284           | 109.2 | 71.4  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 3/4        | 7/8    |  |
| 173       | 1.66 | 257           | 97.9  | 79.5  | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 13/16      | 15/16  |  |
| 148       | 1.64 | 220           | 96.8  | 80.5  | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 13/16      | 15/16  |  |
| 132       | 1.47 | 196           | 86.7  | 89.8  | 5/16   | 3/8        | 7/16   | 9/16       | 9/16   | 7/8        | 1      |  |
| 124       | 1.39 | 185           | 82.0  | 95.0  | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 15/16      | 1-1/16 |  |
| 116       | 1.3  | 173           | 76.7  | 101.5 | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 15/16      | 1-1/8  |  |
| 108       | 1.21 | 161           | 71.4  | 109.1 | 5/16   | 3/8        | 1/2    | 11/16      | 11/16  | 1          | 1-1/8  |  |
| 99        | 1.12 | 147           | 66.1  | 117.9 | 5/16   | 3/8        | 1/2    | 11/16      | 11/16  | 1-1/16     | 1-3/16 |  |
| 90        | 1.02 | 134           | 60.2  | 129.4 | 5/16   | 7/16       | 1/2    | 3/4        | 3/4    | 1-1/8      | 1-5/16 |  |
|           |      |               |       |       |        |            |        |            |        |            |        |  |
| W27 x 539 | 5.08 | W690 x 802    | 299.7 | 26.0  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 3/8    |  |
| 368       | 3.64 | 548           | 214.8 | 36.3  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 7/16       | 1/2    |  |

Note: Increased thicknesses may be applied when thickness applied to lower flange tips is reduced by one-half.  
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**Restrained Beam**

**Cellular, Fluted-Cellular or Corrugated Deck  
Lightweight and Normal Weight Concrete  
CAFCO 300, 300ES, 300SB, 400**

| <b>ASTM</b>   |            |                      |            |             |               |                   |               |                   |               |                   |               |
|---------------|------------|----------------------|------------|-------------|---------------|-------------------|---------------|-------------------|---------------|-------------------|---------------|
| <b>Desig.</b> | <b>W/D</b> | <b>Metric Desig.</b> | <b>M/D</b> | <b>Hp/A</b> | <b>1-Hour</b> | <b>1-1/2 Hour</b> | <b>2-Hour</b> | <b>2-1/2 Hour</b> | <b>3-Hour</b> | <b>3-1/2 Hour</b> | <b>4-Hour</b> |
| W27 x 336     | 3.36       | W690 x 500           | 198.2      | 39.3        | 5/16          | 3/8               | 3/8           | 3/8               | 3/8           | 1/2               | 9/16          |
| 307           | 3.11       | 457                  | 183.5      | 42.4        | 5/16          | 3/8               | 3/8           | 3/8               | 3/8           | 1/2               | 9/16          |
| 281           | 2.86       | 418                  | 168.7      | 46.2        | 5/16          | 3/8               | 3/8           | 3/8               | 3/8           | 9/16              | 5/8           |
| 258           | 2.64       | 384                  | 155.8      | 50.0        | 5/16          | 3/8               | 3/8           | 3/8               | 3/8           | 9/16              | 11/16         |
| 235           | 2.43       | 350                  | 143.4      | 54.3        | 5/16          | 3/8               | 3/8           | 7/16              | 7/16          | 5/8               | 11/16         |
| 217           | 2.26       | 323                  | 133.3      | 58.4        | 5/16          | 3/8               | 3/8           | 7/16              | 7/16          | 5/8               | 3/4           |
| 194           | 2.03       | 289                  | 119.8      | 65.0        | 5/16          | 3/8               | 3/8           | 7/16              | 7/16          | 11/16             | 13/16         |
| 178           | 1.87       | 265                  | 110.3      | 70.6        | 5/16          | 3/8               | 3/8           | 1/2               | 1/2           | 3/4               | 7/8           |
| 161           | 1.7        | 240                  | 100.3      | 77.6        | 5/16          | 3/8               | 3/8           | 1/2               | 1/2           | 13/16             | 15/16         |
| 146           | 1.55       | 217                  | 91.5       | 85.2        | 5/16          | 3/8               | 3/8           | 9/16              | 9/16          | 7/8               | 1             |
| 129           | 1.56       | 192                  | 92.0       | 84.6        | 5/16          | 3/8               | 3/8           | 9/16              | 9/16          | 7/8               | 1             |
| 114           | 1.39       | 170                  | 82.0       | 95.0        | 5/16          | 3/8               | 7/16          | 5/8               | 5/8           | 15/16             | 1-1/16        |
| 102           | 1.24       | 152                  | 73.2       | 106.5       | 5/16          | 3/8               | 7/16          | 5/8               | 5/8           | 1                 | 1-1/8         |
| 94            | 1.15       | 140                  | 67.9       | 114.8       | 5/16          | 3/8               | 1/2           | 11/16             | 11/16         | 1-1/16            | 1-3/16        |
| 84            | 1.03       | 125                  | 60.8       | 128.2       | 5/16          | 7/16              | 1/2           | 3/4               | 3/4           | 1-1/8             | 1-1/4         |
| W24 x 370     | 3.98       | W610 x 551           | 234.8      | 33.2        | 5/16          | 3/8               | 3/8           | 3/8               | 3/8           | 7/16              | 1/2           |
| 335           | 3.66       | 498                  | 215.9      | 36.1        | 5/16          | 3/8               | 3/8           | 3/8               | 3/8           | 7/16              | 1/2           |
| 306           | 3.37       | 455                  | 198.8      | 39.2        | 5/16          | 3/8               | 3/8           | 3/8               | 3/8           | 1/2               | 9/16          |
| 279           | 3.11       | 415                  | 183.5      | 42.4        | 5/16          | 3/8               | 3/8           | 3/8               | 3/8           | 1/2               | 9/16          |
| 250           | 2.81       | 372                  | 165.8      | 47.0        | 5/16          | 3/8               | 3/8           | 3/8               | 3/8           | 9/16              | 5/8           |
| 229           | 2.6        | 341                  | 153.4      | 50.8        | 5/16          | 3/8               | 3/8           | 3/8               | 3/8           | 9/16              | 11/16         |
| 207           | 2.36       | 307                  | 139.2      | 55.9        | 5/16          | 3/8               | 3/8           | 7/16              | 7/16          | 5/8               | 11/16         |
| 192           | 2.2        | 285                  | 129.8      | 60.0        | 5/16          | 3/8               | 3/8           | 7/16              | 7/16          | 11/16             | 3/4           |
| 176           | 2.03       | 262                  | 119.8      | 65.0        | 5/16          | 3/8               | 3/8           | 7/16              | 7/16          | 11/16             | 13/16         |
| 162           | 1.88       | 241                  | 110.9      | 70.2        | 5/16          | 3/8               | 3/8           | 1/2               | 1/2           | 3/4               | 7/8           |
| 146           | 1.7        | 217                  | 100.3      | 77.6        | 5/16          | 3/8               | 3/8           | 1/2               | 1/2           | 13/16             | 15/16         |
| 131           | 1.54       | 195                  | 90.9       | 85.7        | 5/16          | 3/8               | 3/8           | 9/16              | 9/16          | 7/8               | 1             |
| 117           | 1.38       | 174                  | 81.4       | 95.7        | 5/16          | 3/8               | 7/16          | 5/8               | 5/8           | 15/16             | 1-1/16        |
| 104           | 1.24       | 155                  | 73.2       | 106.5       | 5/16          | 3/8               | 7/16          | 5/8               | 5/8           | 1                 | 1-1/8         |
| 103           | 1.4        | 153                  | 82.6       | 94.3        | 5/16          | 3/8               | 7/16          | 5/8               | 5/8           | 15/16             | 1-1/16        |
| 94            | 1.28       | 140                  | 75.5       | 103.1       | 5/16          | 3/8               | 7/16          | 5/8               | 5/8           | 15/16             | 1-1/8         |
| 84            | 1.15       | 125                  | 67.9       | 114.8       | 5/16          | 3/8               | 1/2           | 11/16             | 11/16         | 1-1/16            | 1-3/16        |
| 76            | 1.05       | 113                  | 62.0       | 125.7       | 5/16          | 3/8               | 1/2           | 3/4               | 3/4           | 1-1/8             | 1-1/4         |
| 68            | 0.94       | 101                  | 55.5       | 140.4       | 5/16          | 7/16              | 9/16          | 3/4               | 3/4           | 1-3/16            | 1-3/8         |
| 62            | 0.93       | 92                   | 54.9       | 141.9       | 5/16          | 7/16              | 9/16          | 3/4               | 3/4           | 1-3/16            | 1-3/8         |
| 55            | 0.82       | 82                   | 48.4       | 161.0       | 5/16          | 7/16              | 9/16          | 13/16             | 13/16         | 1-1/4             | 1-7/16        |
| W21 x 201     | 2.5        | W530 x 300           | 147.5      | 52.8        | 5/16          | 3/8               | 3/8           | 3/8               | 3/8           | 5/8               | 11/16         |
| 182           | 2.28       | 272                  | 134.5      | 57.9        | 5/16          | 3/8               | 3/8           | 7/16              | 7/16          | 5/8               | 3/4           |

Note: Increased thicknesses may be applied when thickness applied to lower flange tips is reduced by one-half. Flutes may be "plugged" on both sides of beam; filling not required.

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| ASTM      |      |               |       |       |        |            |        |            |        |            |        |
|-----------|------|---------------|-------|-------|--------|------------|--------|------------|--------|------------|--------|
| Desig.    | W/D  | Metric Desig. | M/D   | Hp/A  | 1-Hour | 1-1/2 Hour | 2-Hour | 2-1/2 Hour | 3-Hour | 3-1/2 Hour | 4-Hour |
| W21 x 166 | 2.09 | W530 x 248    | 123.3 | 63.2  | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 11/16      | 13/16  |
| 147       | 1.87 | 219           | 110.3 | 70.6  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 3/4        | 7/8    |
| 132       | 1.68 | 196           | 99.1  | 78.6  | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 13/16      | 15/16  |
| 122       | 1.57 | 182           | 92.6  | 84.1  | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 13/16      | 15/16  |
| 111       | 1.43 | 165           | 84.4  | 92.3  | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 7/8        | 1      |
| 101       | 1.3  | 150           | 76.7  | 101.5 | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 15/16      | 1-1/8  |
| 93        | 1.4  | 138           | 82.6  | 94.3  | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 15/16      | 1-1/16 |
| 83        | 1.26 | 123           | 74.3  | 104.8 | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 1          | 1-1/8  |
| 73        | 1.11 | 109           | 65.5  | 118.9 | 5/16   | 3/8        | 1/2    | 11/16      | 11/16  | 1-1/16     | 1-3/16 |
| 68        | 1.04 | 101           | 61.4  | 126.9 | 5/16   | 7/16       | 1/2    | 3/4        | 3/4    | 1-1/8      | 1-1/4  |
| 62        | 0.95 | 92            | 56.1  | 138.9 | 5/16   | 7/16       | 9/16   | 3/4        | 3/4    | 1-3/16     | 1-5/16 |
| 57        | 0.95 | 85            | 56.1  | 138.9 | 5/16   | 7/16       | 9/16   | 3/4        | 3/4    | 1-3/16     | 1-5/16 |
| 55        | 0.85 | 82            | 50.2  | 155.3 | 5/16   | 7/16       | 9/16   | 13/16      | 13/16  | 1-1/4      | 1-7/16 |
| 50        | 0.83 | 74            | 49.0  | 159.0 | 5/16   | 7/16       | 9/16   | 13/16      | 13/16  | 1-1/4      | 1-7/16 |
| 48        | 0.75 | 72            | 44.3  | 176.0 | 3/8    | 1/2        | 5/8    | 7/8        | 7/8    | 1-5/16     | 1-9/16 |
| 44        | 0.74 | 66            | 43.7  | 178.4 | 3/8    | 1/2        | 5/8    | 7/8        | 7/8    | 1-3/8      | 1-9/16 |
| W18 x 175 | 2.46 | W460 x 260    | 145.1 | 53.7  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 5/8        | 11/16  |
| 158       | 2.24 | 235           | 132.2 | 58.9  | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 5/8        | 3/4    |
| 143       | 2.05 | 213           | 121.0 | 64.4  | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 11/16      | 13/16  |
| 130       | 1.88 | 193           | 110.9 | 70.2  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 3/4        | 7/8    |
| 119       | 1.72 | 177           | 101.5 | 76.7  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 13/16      | 7/8    |
| 106       | 1.55 | 158           | 91.5  | 85.2  | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 7/8        | 1      |
| 97        | 1.42 | 144           | 83.8  | 93.0  | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 7/8        | 1-1/16 |
| 86        | 1.27 | 128           | 74.9  | 103.9 | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 1          | 1-1/8  |
| 76        | 1.13 | 113           | 66.7  | 116.8 | 5/16   | 3/8        | 1/2    | 11/16      | 11/16  | 1-1/16     | 1-3/16 |
| 71        | 1.22 | 106           | 72.0  | 108.2 | 5/16   | 3/8        | 7/16   | 11/16      | 11/16  | 1          | 1-1/8  |
| 65        | 1.13 | 97            | 66.7  | 116.8 | 5/16   | 3/8        | 1/2    | 11/16      | 11/16  | 1-1/16     | 1-3/16 |
| 60        | 1.04 | 89            | 61.4  | 126.9 | 5/16   | 7/16       | 1/2    | 3/4        | 3/4    | 1-1/8      | 1-1/4  |
| 55        | 0.96 | 82            | 56.6  | 137.5 | 5/16   | 7/16       | 9/16   | 3/4        | 3/4    | 1-3/16     | 1-5/16 |
| 50        | 0.88 | 74            | 51.9  | 150.0 | 5/16   | 7/16       | 9/16   | 13/16      | 13/16  | 1-1/4      | 1-3/8  |
| 46        | 0.87 | 68            | 51.3  | 151.7 | 5/16   | 7/16       | 9/16   | 13/16      | 13/16  | 1-1/4      | 1-7/16 |
| 40        | 0.76 | 60            | 44.8  | 173.7 | 3/8    | 1/2        | 5/8    | 7/8        | 7/8    | 1-5/16     | 1-1/2  |
| 35        | 0.67 | 52            | 39.5  | 197.0 | 3/8    | 1/2        | 5/8    | 15/16      | 15/16  | 1-7/16     | 1-5/8  |
| W16 x 100 | 1.59 | W410 x 149    | 93.8  | 83.0  | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 13/16      | 15/16  |
| 89        | 1.43 | 132           | 84.4  | 92.3  | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 7/8        | 1      |
| 77        | 1.25 | 114           | 73.8  | 105.6 | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 1          | 1-1/8  |
| 67        | 1.09 | 100           | 64.3  | 121.1 | 5/16   | 3/8        | 1/2    | 11/16      | 11/16  | 1-1/16     | 1-1/4  |
| 57        | 1.09 | 85            | 64.3  | 121.1 | 5/16   | 3/8        | 1/2    | 11/16      | 11/16  | 1-1/16     | 1-1/4  |
| 50        | 0.96 | 74            | 56.6  | 137.5 | 5/16   | 7/16       | 9/16   | 3/4        | 3/4    | 1-3/16     | 1-5/16 |
| 45        | 0.87 | 67            | 51.3  | 151.7 | 5/16   | 7/16       | 9/16   | 13/16      | 13/16  | 1-1/4      | 1-7/16 |

Note: Increased thicknesses may be applied when thickness applied to lower flange tips is reduced by one-half.  
Flutes may be "plugged" on both sides of beam; filling not required.

**N759**

**Cellular, Fluted-Cellular or Corrugated Deck  
Lightweight and Normal Weight Concrete  
CAFCO 300, 300ES, 300SB, 400**

**Restrained Beam**

| ASTM      |      |               |       |       |        |            |        |            |        |            |         |  |
|-----------|------|---------------|-------|-------|--------|------------|--------|------------|--------|------------|---------|--|
| Desig.    | W/D  | Metric Desig. | M/D   | Hp/A  | 1-Hour | 1-1/2 Hour | 2-Hour | 2-1/2 Hour | 3-Hour | 3-1/2 Hour | 4-Hour  |  |
| W16 x 40  | 0.78 | W410 x 60     | 46.0  | 169.2 | 3/8    | 1/2        | 5/8    | 7/8        | 7/8    | 1-5/16     | 1-1/2   |  |
| 36        | 0.7  | 53            | 41.3  | 188.6 | 3/8    | 1/2        | 5/8    | 15/16      | 15/16  | 1-3/8      | 1-9/16  |  |
| 31        | 0.66 | 46            | 38.9  | 200.0 | 3/8    | 1/2        | 11/16  | 15/16      | 15/16  | 1-7/16     | 1-5/8   |  |
| 26        | 0.55 | 39            | 32.5  | 240.0 | 7/16   | 9/16       | 3/4    | 1          | 1      | 1-9/16     | 1-13/16 |  |
| W14 x 808 | 8.75 | W360 x 1202   | 516.3 | 15.1  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 3/8     |  |
| 730       | 8.08 | 1086          | 476.7 | 16.3  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 3/8     |  |
| 665       | 7.49 | 990           | 441.9 | 17.6  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 3/8     |  |
| 605       | 6.96 | 900           | 410.6 | 19.0  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 3/8     |  |
| 550       | 6.43 | 818           | 379.4 | 20.5  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 3/8     |  |
| 500       | 5.95 | 744           | 351.1 | 22.2  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 3/8     |  |
| 455       | 5.53 | 677           | 326.3 | 23.9  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 3/8     |  |
| 426       | 5.21 | 634           | 307.4 | 25.3  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 3/8     |  |
| 398       | 4.93 | 592           | 290.9 | 26.8  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 3/8     |  |
| 370       | 4.63 | 551           | 273.2 | 28.5  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 7/16    |  |
| 342       | 4.32 | 509           | 254.9 | 30.6  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 7/16    |  |
| 311       | 3.98 | 463           | 234.8 | 33.2  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 7/16       | 1/2     |  |
| 283       | 3.66 | 421           | 215.9 | 36.1  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 7/16       | 1/2     |  |
| 257       | 3.36 | 382           | 198.2 | 39.3  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 9/16    |  |
| 233       | 3.08 | 347           | 181.7 | 42.9  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 9/16    |  |
| 211       | 2.81 | 314           | 165.8 | 47.0  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 9/16       | 5/8     |  |
| 193       | 2.6  | 287           | 153.4 | 50.8  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 9/16       | 11/16   |  |
| 176       | 2.38 | 262           | 140.4 | 55.5  | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 5/8        | 11/16   |  |
| 159       | 2.16 | 237           | 127.4 | 61.1  | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 11/16      | 3/4     |  |
| 145       | 1.99 | 216           | 117.4 | 66.3  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 11/16      | 13/16   |  |
| 132       | 1.89 | 196           | 111.5 | 69.8  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 3/4        | 7/8     |  |
| 120       | 1.71 | 179           | 100.9 | 77.2  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 13/16      | 15/16   |  |
| 109       | 1.57 | 162           | 92.6  | 84.1  | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 13/16      | 15/16   |  |
| 99        | 1.43 | 147           | 84.4  | 92.3  | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 7/8        | 1       |  |
| 90        | 1.31 | 134           | 77.3  | 100.8 | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 15/16      | 1-1/16  |  |
| 82        | 1.45 | 122           | 85.6  | 91.0  | 5/16   | 3/8        | 7/16   | 9/16       | 9/16   | 7/8        | 1       |  |
| 74        | 1.32 | 110           | 77.9  | 100.0 | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 15/16      | 1-1/16  |  |
| 68        | 1.22 | 101           | 72.0  | 108.2 | 5/16   | 3/8        | 7/16   | 11/16      | 11/16  | 1          | 1-1/8   |  |
| 61        | 1.1  | 91            | 64.9  | 120.0 | 5/16   | 3/8        | 1/2    | 11/16      | 11/16  | 1-1/16     | 1-1/4   |  |
| 53        | 1.06 | 79            | 62.5  | 124.5 | 5/16   | 3/8        | 1/2    | 3/4        | 3/4    | 1-1/16     | 1-1/4   |  |
| 48        | 0.97 | 72            | 57.2  | 136.1 | 5/16   | 7/16       | 9/16   | 3/4        | 3/4    | 1-1/8      | 1-5/16  |  |
| 43        | 0.87 | 64            | 51.3  | 151.7 | 5/16   | 7/16       | 9/16   | 13/16      | 13/16  | 1-1/4      | 1-7/16  |  |
| 38        | 0.8  | 57            | 47.2  | 165.0 | 3/8    | 1/2        | 5/8    | 7/8        | 7/8    | 1-5/16     | 1-1/2   |  |
| 34        | 0.72 | 51            | 42.5  | 183.3 | 3/8    | 1/2        | 5/8    | 7/8        | 7/8    | 1-3/8      | 1-9/16  |  |
| 30        | 0.64 | 45            | 37.8  | 206.3 | 3/8    | 1/2        | 11/16  | 15/16      | 15/16  | 1-7/16     | 1-11/16 |  |
| 26        | 0.62 | 39            | 36.6  | 212.9 | 3/8    | 9/16       | 11/16  | 1          | 1      | 1-1/2      | 1-11/16 |  |
| 22        | 0.53 | 33            | 31.3  | 249.1 | 7/16   | 9/16       | 3/4    | 1-1/16     | 1-1/16 | 1-9/16     | 1-13/16 |  |

Note: Increased thicknesses may be applied when thickness applied to lower flange tips is reduced by one-half. Flutes may be "plugged" on both sides of beam; filling not required.

N759

Restrained Beam

Cellular, Fluted-Cellular or Corrugated Deck  
 Lightweight and Normal Weight Concrete  
 CAFCO 300, 300ES, 300SB, 400

| ASTM      |      |               |       |       |        |            |        |            |        |            |         |
|-----------|------|---------------|-------|-------|--------|------------|--------|------------|--------|------------|---------|
| Desig.    | W/D  | Metric Desig. | M/D   | Hp/A  | 1-Hour | 1-1/2 Hour | 2-Hour | 2-1/2 Hour | 3-Hour | 3-1/2 Hour | 4-Hour  |
| W12 x 336 | 4.85 | W310 x 500    | 286.2 | 27.2  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 3/8     |
| 305       | 4.49 | 454           | 264.9 | 29.4  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 7/16    |
| 279       | 4.19 | 415           | 247.2 | 31.5  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 3/8        | 7/16    |
| 252       | 3.84 | 375           | 226.6 | 34.4  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 7/16       | 1/2     |
| 230       | 3.55 | 342           | 209.5 | 37.2  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 7/16       | 1/2     |
| 210       | 3.27 | 313           | 192.9 | 40.4  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 9/16    |
| 190       | 3    | 283           | 177.0 | 44.0  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 1/2        | 5/8     |
| 170       | 2.72 | 253           | 160.5 | 48.5  | 5/16   | 3/8        | 3/8    | 3/8        | 3/8    | 9/16       | 5/8     |
| 152       | 2.45 | 225           | 144.6 | 53.9  | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 5/8        | 11/16   |
| 136       | 2.23 | 202           | 131.6 | 59.2  | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 5/8        | 3/4     |
| 120       | 1.99 | 179           | 117.4 | 66.3  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 11/16      | 13/16   |
| 106       | 1.77 | 158           | 104.4 | 74.6  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 3/4        | 7/8     |
| 96        | 1.61 | 143           | 95.0  | 82.0  | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 13/16      | 15/16   |
| 87        | 1.47 | 129           | 86.7  | 89.8  | 5/16   | 3/8        | 7/16   | 9/16       | 9/16   | 7/8        | 1       |
| 79        | 1.34 | 117           | 79.1  | 98.5  | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 15/16      | 1-1/16  |
| 72        | 1.23 | 107           | 72.6  | 107.3 | 5/16   | 3/8        | 7/16   | 11/16      | 11/16  | 1          | 1-1/8   |
| 65        | 1.11 | 97            | 65.5  | 118.9 | 5/16   | 3/8        | 1/2    | 11/16      | 11/16  | 1-1/16     | 1-3/16  |
| 58        | 1.1  | 86            | 64.9  | 120.0 | 5/16   | 3/8        | 1/2    | 11/16      | 11/16  | 1-1/16     | 1-1/4   |
| 53        | 1.02 | 79            | 60.2  | 129.4 | 5/16   | 7/16       | 1/2    | 3/4        | 3/4    | 1-1/8      | 1-5/16  |
| 50        | 1.06 | 74            | 62.5  | 124.5 | 5/16   | 3/8        | 1/2    | 3/4        | 3/4    | 1-1/16     | 1-1/4   |
| 45        | 0.97 | 67            | 57.2  | 136.1 | 5/16   | 7/16       | 9/16   | 3/4        | 3/4    | 1-1/8      | 1-5/16  |
| 40        | 0.86 | 60            | 50.7  | 153.5 | 5/16   | 7/16       | 9/16   | 13/16      | 13/16  | 1-1/4      | 1-7/16  |
| 35        | 0.81 | 52            | 47.8  | 163.0 | 5/16   | 7/16       | 9/16   | 13/16      | 13/16  | 1-1/4      | 1-7/16  |
| 30        | 0.69 | 45            | 40.7  | 191.3 | 3/8    | 1/2        | 5/8    | 15/16      | 15/16  | 1-3/8      | 1-5/8   |
| 26        | 0.61 | 39            | 36.0  | 216.4 | 3/8    | 9/16       | 11/16  | 1          | 1      | 1-1/2      | 1-11/16 |
| 22        | 0.62 | 33            | 36.6  | 212.9 | 3/8    | 9/16       | 11/16  | 1          | 1      | 1-1/2      | 1-11/16 |
| 19        | 0.54 | 28            | 31.9  | 244.4 | 7/16   | 9/16       | 3/4    | 1-1/16     | 1-1/16 | 1-9/16     | 1-13/16 |
| 16        | 0.45 | 24            | 26.6  | 293.3 | 7/16   | 5/8        | 13/16  | 1-1/8      | 1-1/8  | 1-11/16    | 1-15/16 |
| 14        | 0.4  | 21            | 23.6  | 330.0 | 1/2    | 5/8        | 13/16  | 1-3/16     | 1-3/16 | 1-13/16    | 2-1/16  |
| W10 x 112 | 2.17 | W250 x 167    | 128.0 | 60.8  | 5/16   | 3/8        | 3/8    | 7/16       | 7/16   | 11/16      | 3/4     |
| 100       | 1.97 | 149           | 116.2 | 67.0  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 11/16      | 13/16   |
| 88        | 1.74 | 131           | 102.7 | 75.9  | 5/16   | 3/8        | 3/8    | 1/2        | 1/2    | 13/16      | 7/8     |
| 77        | 1.54 | 115           | 90.9  | 85.7  | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 7/8        | 1       |
| 68        | 1.38 | 101           | 81.4  | 95.7  | 5/16   | 3/8        | 7/16   | 5/8        | 5/8    | 15/16      | 1-1/16  |
| 60        | 1.22 | 89            | 72.0  | 108.2 | 5/16   | 3/8        | 7/16   | 11/16      | 11/16  | 1          | 1-1/8   |
| 54        | 1.11 | 80            | 65.5  | 118.9 | 5/16   | 3/8        | 1/2    | 11/16      | 11/16  | 1-1/16     | 1-3/16  |
| 49        | 1.01 | 73            | 59.6  | 130.7 | 5/16   | 7/16       | 1/2    | 3/4        | 3/4    | 1-1/8      | 1-5/16  |
| 45        | 1.06 | 67            | 62.5  | 124.5 | 5/16   | 3/8        | 1/2    | 3/4        | 3/4    | 1-1/16     | 1-1/4   |
| 39        | 0.92 | 58            | 54.3  | 143.5 | 5/16   | 7/16       | 9/16   | 13/16      | 13/16  | 1-3/16     | 1-3/8   |
| 33        | 0.78 | 49            | 46.0  | 169.2 | 3/8    | 1/2        | 5/8    | 7/8        | 7/8    | 1-5/16     | 1-1/2   |
| 30        | 0.8  | 45            | 47.2  | 165.0 | 3/8    | 1/2        | 5/8    | 7/8        | 7/8    | 1-5/16     | 1-1/2   |

Note: Increased thicknesses may be applied when thickness applied to lower flange tips is reduced by one-half.  
 Flutes may be "plugged" on both sides of beam; filling not required.

**N759**

**Cellular, Fluted-Cellular or Corrugated Deck  
Lightweight and Normal Weight Concrete  
CAFCO 300, 300ES, 300SB, 400**

**Restrained Beam**

**ASTM**

| ASTM<br>Desig. | W/D  | Metric Desig. | M/D  | Hp/A  | 1-Hour | 1-1/2 Hour | 2-Hour | 2-1/2 Hour | 3-Hour | 3-1/2 Hour | 4-Hour  |
|----------------|------|---------------|------|-------|--------|------------|--------|------------|--------|------------|---------|
| W10 x 26       | 0.7  | W10 x 39      | 41.3 | 188.6 | 3/8    | 1/2        | 5/8    | 15/16      | 15/16  | 1-3/8      | 1-9/16  |
| 22             | 0.6  | 33            | 35.4 | 220.0 | 3/8    | 9/16       | 11/16  | 1          | 1      | 1-1/2      | 1-3/4   |
| 19             | 0.6  | 28            | 35.4 | 220.0 | 3/8    | 9/16       | 11/16  | 1          | 1      | 1-1/2      | 1-3/4   |
| 17             | 0.54 | 25            | 31.9 | 244.4 | 7/16   | 9/16       | 3/4    | 1-1/16     | 1-1/16 | 1-9/16     | 1-13/16 |
| 15             | 0.48 | 22            | 28.3 | 275.0 | 7/16   | 5/8        | 3/4    | 1-1/16     | 1-1/16 | 1-11/16    | 1-15/16 |
| 12             | 0.39 | 18            | 23.0 | 338.5 | 1/2    | 5/8        | 13/16  | 1-3/16     | 1-3/16 | 1-13/16    | 2-1/16  |
| W8 x 67        | 1.65 | W200 x 100    | 97.4 | 80.0  | 5/16   | 3/8        | 3/8    | 9/16       | 9/16   | 13/16      | 15/16   |
| 58             | 1.44 | 86            | 85.0 | 91.7  | 5/16   | 3/8        | 7/16   | 9/16       | 9/16   | 7/8        | 1       |
| 48             | 1.21 | 71            | 71.4 | 109.1 | 5/16   | 3/8        | 1/2    | 11/16      | 11/16  | 1          | 1-1/8   |
| 40             | 1.03 | 59            | 60.8 | 128.2 | 5/16   | 7/16       | 1/2    | 3/4        | 3/4    | 1-1/8      | 1-1/4   |
| 35             | 0.9  | 52            | 53.1 | 146.7 | 5/16   | 7/16       | 9/16   | 13/16      | 13/16  | 1-3/16     | 1-3/8   |
| 31             | 0.8  | 46            | 47.2 | 165.0 | 3/8    | 1/2        | 5/8    | 7/8        | 7/8    | 1-5/16     | 1-1/2   |
| 28             | 0.81 | 42            | 47.8 | 163.0 | 5/16   | 7/16       | 9/16   | 13/16      | 13/16  | 1-1/4      | 1-7/16  |
| 24             | 0.7  | 36            | 41.3 | 188.6 | 3/8    | 1/2        | 5/8    | 15/16      | 15/16  | 1-3/8      | 1-9/16  |
| 21             | 0.67 | 31            | 39.5 | 197.0 | 3/8    | 1/2        | 5/8    | 15/16      | 15/16  | 1-7/16     | 1-5/8   |
| 18             | 0.58 | 27            | 34.2 | 227.6 | 3/8    | 9/16       | 11/16  | 1          | 1      | 1-1/2      | 1-3/4   |
| 15             | 0.55 | 22            | 32.5 | 240.0 | 7/16   | 9/16       | 3/4    | 1          | 1      | 1-9/16     | 1-13/16 |
| 13             | 0.48 | 19            | 28.3 | 275.0 | 7/16   | 5/8        | 3/4    | 1-1/16     | 1-1/16 | 1-11/16    | 1-15/16 |
| 10             | 0.37 | 15            | 21.8 | 356.8 | 1/2    | 11/16      | 7/8    | 1-3/16     | 1-3/16 | 1-7/8      | 2-1/8   |
| W6 x 25        | 0.83 | W150 x 37     | 49.0 | 159.0 | 5/16   | 7/16       | 9/16   | 13/16      | 13/16  | 1-1/4      | 1-7/16  |
| 20             | 0.67 | 30            | 39.5 | 197.0 | 3/8    | 1/2        | 5/8    | 15/16      | 15/16  | 1-7/16     | 1-5/8   |
| 16             | 0.68 | 24            | 40.1 | 194.1 | 3/8    | 1/2        | 5/8    | 15/16      | 15/16  | 1-7/16     | 1-5/8   |
| 15             | 0.52 | 22            | 30.7 | 253.8 | 7/16   | 9/16       | 3/4    | 1-1/16     | 1-1/16 | 1-5/8      | 1-13/16 |
| 12             | 0.52 | 18            | 30.7 | 253.8 | 7/16   | 9/16       | 3/4    | 1-1/16     | 1-1/16 | 1-5/8      | 1-13/16 |
| 9              | 0.39 | 14            | 23.0 | 338.5 | 1/2    | 5/8        | 13/16  | 1-3/16     | 1-3/16 | 1-13/16    | 2-1/16  |
| 8.5            | 0.37 | 13            | 21.8 | 356.8 | 1/2    | 11/16      | 7/8    | 1-3/16     | 1-3/16 | 1-7/8      | 2-1/8   |
| W5 x 19        | 0.77 | W130 x 28     | 45.4 | 171.4 | 3/8    | 1/2        | 5/8    | 7/8        | 7/8    | 1-5/16     | 1-1/2   |
| 16             | 0.66 | 24            | 38.9 | 200.0 | 3/8    | 1/2        | 11/16  | 15/16      | 15/16  | 1-7/16     | 1-5/8   |
| W4 x 13        | 0.67 | W100 x 19     | 39.5 | 197.0 | 3/8    | 1/2        | 5/8    | 15/16      | 15/16  | 1-7/16     | 1-5/8   |

Note: Increased thicknesses may be applied when thickness applied to lower flange tips is reduced by one-half.  
Flutes may be "plugged" on both sides of beam; filling not required.