

# POWER BEAM® DESIGN PROPERTIES

| Flexural Stress | Modulus of Elasticity | Horizontal Stress | Compression Perp |
|-----------------|-----------------------|-------------------|------------------|
| $F_b$           | E                     | $F_v$             | $F_{cperp}$      |
| 3000 psi        | 2,100,000 psi         | 300 psi           | 805 psi          |

## POWER BEAM® SECTION PROPERTIES AND ALLOWABLE CAPACITIES

### 3-1/2" BEAM WIDTH

| Depth                                  | 7-1/4" | 9-1/4" | 9-1/2" | 11-1/4" | 11-7/8" | 14"   | 16"   | 18"   |
|--|--------|--------|--------|---------|---------|-------|-------|-------|
| Weight [lbs/ft.]                       | 7.0    | 9.0    | 9.2    | 10.9    | 11.6    | 13.6  | 15.6  | 17.5  |
| $C_{vdb}$ Factor (L=21')               | 1.00   | 1.00   | 1.00   | 1.00    | 1.00    | 1.00  | 1.00  | 0.99  |
| Moment of Inertia I [in <sup>4</sup> ] | 111    | 231    | 250    | 415     | 489     | 800   | 1195  | 1701  |
| Moment Capacity M [ft-lbs]             | 7665   | 12478  | 13161  | 18457   | 20582   | 28583 | 37333 | 47193 |
| Shear Capacity [Lbs]                   | 5075   | 6475   | 6650   | 7875    | 8316    | 9800  | 11200 | 12600 |

### 5-1/2" BEAM WIDTH

| Depth                                  | 7-1/4" | 9-1/4" | 9-1/2" | 11-1/4" | 11-7/8" | 14"   | 16"   | 18"   |
|--|--------|--------|--------|---------|---------|-------|-------|-------|
| Weight [lbs/ft.]                       | 11.1   | 14.1   | 14.5   | 17.2    | 18.2    | 21.4  | 24.4  | 27.5  |
| $C_{vdb}$ Factor (L=21')               | 1.00   | 1.00   | 1.00   | 1.00    | 0.989   | 0.989 | 0.982 | 0.976 |
| Moment of Inertia I [in <sup>4</sup> ] | 175    | 363    | 393    | 653     | 768     | 1258  | 1877  | 2673  |
| Moment Capacity M [ft-lbs]             | 12046  | 19608  | 20682  | 29003   | 32246   | 44415 | 57625 | 72503 |
| Shear Capacity [Lbs]                   | 7975   | 10175  | 10450  | 12375   | 13068   | 15400 | 17600 | 19800 |

### 7" BEAM WIDTH

| Depth                                  | 7-1/4" | 9-1/4" | 9-1/2" | 11-1/4" | 11-7/8" | 14"   | 16"   | 18"   |
|--|--------|--------|--------|---------|---------|-------|-------|-------|
| Weight [lbs/ft.]                       | 14.1   | 18.0   | 18.5   | 21.9    | 23.1    | 27.2  | 31.1  | 35.0  |
| $C_{vdb}$ Factor (L=21')               | 1.00   | 1.00   | 1.00   | 0.988   | 0.985   | 0.977 | .970  | 0.965 |
| Moment of Inertia I [in <sup>4</sup> ] | 222    | 462    | 500    | 831     | 978     | 1601  | 2389  | 3402  |
| Moment Capacity M [ft-lbs]             | 15331  | 24956  | 26323  | 36471   | 40512   | 55852 | 72427 | 91192 |
| Shear Capacity [Lbs]                   | 10150  | 12950  | 13300  | 15750   | 16632   | 19600 | 22400 | 25200 |

Flexural stress  $F_b$  shall be modified by Volume Factor,  $C_v$ , as outlined in ICC ESR-1940, APA Product Report-L263 and APA-EWS Y117 where :

$$C_v = \frac{K_L \times [(21/L)^{0.05} \times (12/d)^{0.05} \times (5.125/b)^{0.05}]}{1.0} \leq 1.0 \quad \text{where:}$$

$K_L$  = loading coefficient (1.0 for uniformly distributed)  
 L = length of bending member between points of zero moment, ft.  
 d = depth of bending member, in.  
 b = width of bending member, in.

Width and depth portions of Volume Factor,  $C_v$ , are incorporated into tabulated Moment  $C_{vdb}$  Factor.

Note: Allowable design properties and load capacities are based on a load duration of 100 percent and dry use conditions.

## POWER SIZER® SOFTWARE

7" width Power Beam® with the new enhanced 3000F<sub>b</sub> design values is now available in iStruct® branded Power Sizer® software suite. If you are using iStruct® for your single member sizing (iDesign®), floor design and roof framing plans (iPlan®), simply go to the CSD Portal and download the latest version. If you aren't using iStruct®, go to our website <https://www.anthonyforest.com/sizing-software.shtml> and download a copy at no charge. All Power Products® including Power Beam®, Power Preserved Glulam®, Power Column® and Power Rated Glulam® are supported in the iStruct® software suite.



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# BUILD STRONG WITH POWER BEAM®

BETTER, FASTER,  
STRONGER



CHECK OUT OUR NEW  
STRONGER BENDING  
VALUE FOR 7"  
POWER BEAM®

## POWER BEAM® FEATURES

- Strongest engineered wood product on the market
- Design values  $3000F_b - 300F_v - 2.1E$
- Wide width for faster installation – 3 1/2", 5 1/2", and 7"
- Compliment to Mass Timber wood framing systems
- Sustainable Forestry Initiative (SFI®) Certified
- Excellent fire resistance
- Manufactured with superior strength southern yellow pine MSR Lumber
- Cost-efficient, high-strength solution for load-bearing structural applications



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# BEAM COMPARISON

## ALLOWABLE UNIFORM LOAD CAPACITY PLF

| Product      |                    | Design Value                              |   |                       |                       | DEPTH     |           |           |         |           |           |           |          |           |           |           |          |           |           |           |          |
|--------------|--------------------|---|---|-----------------------|-----------------------|-----------|-----------|-----------|---------|-----------|-----------|-----------|----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|----------|
|              |                    | E <sub>TRUE</sub><br>x10 <sup>6</sup> psi | E <sub>APPARENT</sub><br>x10 <sup>6</sup> psi | F <sub>b</sub><br>psi | F <sub>v</sub><br>psi | 11-7/8"   |           |           |         | 14"       |           |           |          | 16"       |           |           |          | 18"       |           |           |          |
|              |                    |   |   |                       |                       | SPAN      |           |           |         |           |           |           |          |           |           |           |          |           |           |           |          |
|              |                    |   |   |                       |                       | 10'       | 12'       | 14'       | 16'-6"  | 12'       | 14'       | 16'-6"    | 18'-6"   | 14'       | 16'-6"    | 18'-6"    | 20'      | 16'-6"    | 18'-6"    | 20'       | 22'      |
| 3-1/2" WIDTH | Power Beam®        | 2.2                                       | 2.1   | 3000                  | 300                   | 1633/1520 | 1130/879  | 819/554   | 498/340 | 1574/1441 | 1153/907  | 812/558   | 578/395  | 1508/1354 | 1084/832  | 852/589   | 681/465  | 1375/1184 | 1090/839  | 928/662   | 728/497  |
|              | SCL 2 ply          | 2.1                                       | 2.0   | 3100                  | 290                   | 1517/1447 | 1172/837  | 781/527   | 480/326 | 1484/1372 | 1170/864  | 791/536   | 556/379  | 1446/1290 | 1085/799  | 834/565   | 650/442  | 1345/1138 | 1075/805  | 912/630   | 694/473  |
|              | SCL 1 ply          | 2.0                                       | 1.9   | 2900                  | 290                   | 1514/1257 | 1092/758  | 721/489   | 444/305 | 1480/1198 | 1093/780  | 720/490   | 514/352  | 1386/1131 | 1009/716  | 759/517   | 603/414  | 1173/995  | 1000/722  | 850/579   | 642/441  |
|              | SCL 2 ply          | 2.0                                       | 1.9   | 2900                  | 285                   | 1250/1250 | 1040/758  | 722/488   | 446/304 | 1226/1198 | 1048/780  | 720/490   | 514/352  | 1198/1132 | 1000/716  | 760/516   | 604/414  | 1142/994  | 988/722   | 844/578   | 644/440  |
|              | SCL 2 ply          | 2.0                                       | 1.9   | 2600                  | 285                   | 1415/1257 | 979/758   | 716/489   | 445/305 | 1333/1198 | 975/780   | 698/490   | 515/352  | 1253/1132 | 897/716   | 710/517   | 604/414  | 1120/995  | 887/722   | 756/579   | 622/441  |
|              | SCL 1 ply          | 1.55                                      | 1.50  | 2325                  | 310                   | 1263/974  | 868/587   | 556/379   | 341/236 | 1198/928  | 876/605   | 554/379   | 395/273  | 1132/877  | 810/555   | 584/401   | 463/320  | NA        | NA        | NA        | NA       |
| 5-1/2" WIDTH | Power Beam®        | 2.2                                       | 2.1   | 3000                  | 300                   | 2567/2388 | 1777/1382 | 1287/870  | 783/534 | 2474/2264 | 1812/1833 | 1278/875  | 910/620  | 2371/2128 | 1694/1307 | 1331/926  | 1071/730 | 2135/1861 | 1682/1319 | 1427/1040 | 1144/781 |
|              | SCL 3 ply (5-1/4") | 2.1                                       | 2.0   | 3100                  | 290                   | 2276/2171 | 1758/1256 | 1171/791  | 720/490 | 2225/2058 | 1755/1296 | 1187/803  | 835/568  | 2169/1935 | 1628/1199 | 1252/848  | 975/664  | 2018/1708 | 1613/1208 | 1369/945  | 1041/710 |
|              | SCL 1 ply (5-1/4") | 2.0                                       | 1.9   | 2900                  | 290                   | 2271/1886 | 1639/1137 | 1082/734  | 667/457 | 2220/1797 | 1639/1171 | 1080/735  | 771/529  | 2079/1698 | 1514/1074 | 1138/776  | 905/621  | 1760/1493 | 1501/1084 | 1275/869  | 964/662  |
|              | SCL 3 ply (5-1/4") | 2.0                                       | 1.9   | 2900                  | 285                   | 1875/1875 | 1560/1137 | 1083/732  | 669/456 | 1839/1797 | 1572/1170 | 1080/735  | 771/528  | 1797/1698 | 1500/1074 | 1140/774  | 906/621  | 1713/1491 | 1482/1083 | 1266/867  | 966/660  |
|              | SCL 3 ply (5-1/4") | 2.0                                       | 1.9   | 2600                  | 285                   | 2123/1886 | 1469/1137 | 1074/734  | 668/457 | 2000/1797 | 1463/1171 | 1047/735  | 772/529  | 1880/1698 | 1346/1074 | 1066/776  | 907/621  | 1680/1493 | 1331/1084 | 1135/869  | 933/662  |
|              | SCL 1 or 2 ply     | 1.55                                      | 1.50  | 2325                  | 310                   | 1894/1462 | 1302/881  | 834/569   | 512/354 | 1797/1393 | 1314/907  | 831/569   | 592/410  | 1698/1316 | 1215/832  | 876/601   | 695/481  | NA        | NA        | NA        | NA       |
| 7" WIDTH     | Power Beam®        | 2.2                                       | 2.1   | 3000                  | 300                   | 3266/3035 | 2261/1756 | 1637/1106 | 997/679 | 3150/2882 | 2300/1815 | 1619/1115 | 1159/790 | 2988/2709 | 2131/1664 | 1678/1179 | 1364/929 | 2686/2369 | 2116/1679 | 1795/1323 | 1458/994 |
|              | SCL 4 ply          | 2.1                                       | 2.0   | 3100                  | 290                   | 3034/2894 | 2343/1675 | 1561/1055 | 960/654 | 2967/2745 | 2341/1728 | 1582/1071 | 1112/758 | 2892/2580 | 2171/1599 | 1669/1131 | 1299/885 | 2690/2277 | 2151/1611 | 1825/1260 | 1388/947 |
|              | SCL 1 ply          | 2.0                                       | 1.9   | 2900                  | 290                   | 3029/2515 | 2185/1516 | 1443/979  | 889/610 | 2960/2396 | 2186/1561 | 1440/980  | 1028/705 | 2773/2264 | 2019/1432 | 1518/1035 | 1207/828 | 2346/1991 | 2001/1445 | 1700/1159 | 1285/883 |
|              | SCL 4 ply          | 2.0                                       | 1.9   | 2900                  | 285                   | 2500/2500 | 2080/1516 | 1444/976  | 892/608 | 2452/2396 | 2096/1560 | 1440/980  | 1028/704 | 2396/2264 | 2000/1432 | 1520/1032 | 1208/828 | 2284/1988 | 1976/1444 | 1688/1156 | 1288/880 |
|              | SCL 4 ply          | 2.0                                       | 1.9   | 2600                  | 285                   | 2830/2514 | 1958/1516 | 1432/978  | 890/610 | 2666/2396 | 1950/1560 | 1396/980  | 1030/704 | 2506/2264 | 1794/1432 | 1420/1034 | 1208/828 | 2240/1990 | 1774/1444 | 1512/1158 | 1244/882 |
|              | SCL 2 ply          | 1.55                                      | 1.50  | 2325                  | 310                   | 2526/1948 | 1736/1174 | 1112/758  | 682/472 | 2396/1856 | 1752/1210 | 1108/758  | 790/546  | 2264/1754 | 1620/1110 | 1168/802  | 926/640  | NA        | NA        | NA        | NA       |

**Notes:**

- Floor TL/LL (Load Duration= 1.0)
- Table is based on on simple span only condition with uniform loading
- L/360 LL Deflection Limit; L/240 TL Deflection Limit
- For Comparison Purposes Only
- Beam Weight included in Total Load
- SCL=Structural Composite Lumber (includes laminated veneer lumber, parallel strand lumber, laminated strand lumber and oriented strand lumber)
- Dry use only