

## Column, Post, Stud Calculator

**Assumptions:** 1) Top and bottom connections are considered 'pinned' (not 'fixed' or embedded). 2) Bearing area at top and bottom is not checked. 3) The column is assumed to be laterally supported at its top and bottom. 4) Loads include axial compression and / or uniform wind (bending). 5) Wet or extreme temperature use of the material is not considered. 6) Design based on 1997 National Design Specification for Wood Construction values and equations.



www.constructioncalc.com

**Disclaimer:** All users of this software shall comply with State Engineering Law; which specifies who may perform engineering, and defines the practice of engineering.

|                    |                      |
|--------------------|----------------------|
| <b>Job Name</b>    | Example Hot Tub Deck |
| <b>Member I.D.</b> | Typical post         |
| <b>Other Info</b>  | by TKG, 5/17/2005    |

### General Information

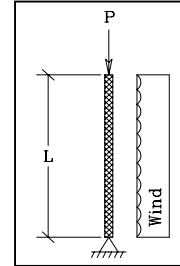
Column, Post, or Stud Length, ft.  $L =$

Max. Live Deflection  $L /$   = 0.41 in

Type Of Column, Post, or Stud

Load Duration Factor

Off-Center (Eccentric) Compression Loads or Add'l Bending Loads (other than wind)?



### Applied Gravity Loads

|   | Live, psf | Dead, psf | x Length, ft      | x Width, ft         | Live Load, lbs | Reduced Live Load, lbs | Dead Load, lbs |
|---|-----------|-----------|-------------------|---------------------|----------------|------------------------|----------------|
| Roof Loads (without snow)                                   |           |           |                   |                     | 0 lb           | 0 lb                   | 0 lb           |
| Roof Snow (only)  |           |           |                   |                     | 0 lb           | 0 lb                   | 0 lb           |
| Floor 3 Loads   |           |           |                   |                     | 0 lb           | 0 lb                   | 0 lb           |
| Floor 2 Loads   |           |           |                   |                     | 0 lb           | 0 lb                   | 0 lb           |
| Floor 1 Loads   |           |           |                   |                     | 0 lb           | 0 lb                   | 0 lb           |
| Wall Dead Load  |           |           |                   |                     |                |                        | 0 lb           |
| Other 'psf' load and trib. area.                            |           |           |                   |                     | 0 lb           | 0 lb                   | 0 lb           |
| Other point load: all Live, all Dead, or some of each, lbs. |           |           | Descrip'n, opt'l: | From beam Reactions | 2,000 lb       |                        | 240 lb         |
| Total Live and Dead Loads:                                  |           |           |                   |                     |                | 2,000 lb               | 240 lb         |
| <b>Combined Total Load:</b>                                 |           |           |                   |                     |                | <b>2,240 lb</b>        |                |

### Wind Load

(Assumes external sheathing of plywood, metal, etc. is applied)

Wind Applied To:

Tributary Width of Wind Load, ft.  $z =$

Wind Pressure  $q =$

|   |  |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
|---|--|---------------|-------|------------|---|----------|-------|---|---|-----------------|-----------------|-----------------|-------------|-------------|---------|---|---|
| <p><b>4x And Smaller (Lumber)</b></p> <p>Lumber Material <input type="text" value="Hem-Fir"/></p> <p>Lumber Grade <input type="text" value="No. 2"/></p> <table border="1"> <tr><td>2 x 12</td></tr> <tr><td>(2) 2 x 4</td></tr> <tr><td>3 x 4</td></tr> <tr><td>4 x 4</td></tr> </table>                             | 2 x 12   | (2) 2 x 4     | 3 x 4 | 4 x 4      | <p><b>5x And Larger (Timbers)</b></p> <p>Timber Material <input type="text" value="Hem - Fir"/></p> <p>Timber Grade <input type="text" value="WWPA - No. 2"/></p> <table border="1"> <tr><td>5 x 5</td><td>-</td><td>-</td></tr> <tr><td>6 x 6</td><td>-</td><td>-</td></tr> <tr><td>-</td><td>-</td><td>-</td></tr> <tr><td>-</td><td>-</td><td>-</td></tr> </table> | 5 x 5    | -     | - | 6 x 6   | -               | -               | -               | -           | -           | -       | - | - |
| 2 x 12  |  |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| (2) 2 x 4   |  |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| 3 x 4   |  |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| 4 x 4   |  |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| 5 x 5   | -  | -             |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| 6 x 6   | -  | -             |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| -   | -  | -             |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| -   | -  | -             |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| <p><b>Glued Laminated Columns</b></p> <p>Glulam Combo. <input type="text" value="3 - DF (Visually Graded)"/></p> <table border="1"> <tr><td>2.5 x 6</td><td>5.125 x 5.125</td></tr> <tr><td>3 x 6</td><td>6.75 x 7.5</td></tr> <tr><td>3.125 x 6</td><td>8.75 x 9</td></tr> <tr><td>5 x 6</td><td></td></tr> </table> | 2.5 x 6  | 5.125 x 5.125 | 3 x 6 | 6.75 x 7.5 | 3.125 x 6   | 8.75 x 9 | 5 x 6 |   | <p><b>1.8E Parallam PSL Columns</b></p> <table border="1"> <tr><td>3-1/2" x 3-1/2"</td><td>5-1/4" x 5-1/4"</td></tr> <tr><td>3-1/2" x 5-1/4"</td><td>5-1/4" x 7"</td></tr> <tr><td>3-1/2" x 7"</td><td>7" x 7"</td></tr> </table> | 3-1/2" x 3-1/2" | 5-1/4" x 5-1/4" | 3-1/2" x 5-1/4" | 5-1/4" x 7" | 3-1/2" x 7" | 7" x 7" |   |   |
| 2.5 x 6   | 5.125 x 5.125  |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| 3 x 6   | 6.75 x 7.5   |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| 3.125 x 6   | 8.75 x 9   |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| 5 x 6   |  |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| 3-1/2" x 3-1/2"   | 5-1/4" x 5-1/4"  |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| 3-1/2" x 5-1/4"   | 5-1/4" x 7"  |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| 3-1/2" x 7"   | 7" x 7"  |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| <p><b>Final Member:</b> <input type="text" value="Sawn Wood"/></p> <p><b>Final Size:</b> <input type="text" value="4 x 4"/></p>   | <p>This member makes it by: <b>77.4%</b></p> <p>Controlling Factor: <b>Compressive Stress (Only)</b></p> |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |
| <p><b>Final Member Selected: 4 x 4, Hem-Fir, No. 2</b></p>  |  |               |       |            |   |          |       |   |   |                 |                 |                 |             |             |         |   |   |