

**Wood Values from test (ASTM D143)**

| Inputs | Wood Name | Extreme Fiber Stress in Bending "FB" Single Member | Modulus of Elasticity | Compression       |                        | Shear parallel to Grain |
|--------|-----------|--|-----------------------|-------------------|------------------------|-------------------------|
|        |           |  |                       | Parallel to Grain | Perpendicular to Grain |                         |
|        | Cumaru    | 27,270   | 3,030,000             | 13,720            | 3,540                  | 1,245                   |

**Allowable values For Wood (Based on ASTM D245)**

*Dimension Lumber*                      1" to 4" thick by 2" and wider

| Wood Name | Grade         | Extreme Fiber Stress in Bending "FB" Single Member | Modulus of Elasticity | Compression          |                        | Shear parallel to Grain |
|-----------|---------------|--|-----------------------|----------------------|------------------------|-------------------------|
|           |               |  |                       | Parallel to Grain II | Perpendicular to Grain |                         |
| Cumaru    | Architectural | 7,250  | 3,220,000             | 4,000                | 2,120                  | 540                     |
|           | FEQ           | 5,700  | 3,220,000             | 3,450                | 2,120                  | 270                     |
|           | COM/ SEL      | 4,750  | 3,220,000             | 2,600                | 2,120                  | 270                     |
|           | FAS           | 4,750  | 3,220,000             | 2,600                | 2,120                  | 270                     |

Values in PSI

*Beam & Stringers*                      4" and thicker, width more than 2" greater than thickness

| Wood Name | Grade         | Extreme Fiber Stress in Bending "FB" Single Member | Modulus of Elasticity | Compression          |                        | Shear parallel to Grain |
|-----------|---------------|--|-----------------------|----------------------|------------------------|-------------------------|
|           |               |  |                       | Parallel to Grain II | Perpendicular to Grain |                         |
| Cumaru    | Architectural | 9,500  | 3,220,000             | 4,500                | 2,120                  | 540                     |
|           | FEQ           | 6,300  | 3,220,000             | 3,450                | 2,120                  | 270                     |
|           | COM/ SEL      | 4,750  | 3,220,000             | 2,600                | 2,120                  | 270                     |
|           | FAS           | 4,750  | 3,220,000             | 2,600                | 2,120                  | 270                     |

Values in PSI

**Additional Grading notes:**

Architectural:

1. It is not allow pin knots bigger than 1/2" at any face and/or edge
2. Maximum permitted slope is 1" in 10"

FEQ:

1. It is not allow knots bigger than 3/4" at narrow face or edges
2. It is not allow centerline knots bigger than 1-3/4" at wide face
3. It is not allow edge knots bigger than 3/4" at wide face
4. Maximum permitted slope is 1" in 8"
5. Length of end split and surface split shall be per ASTM D245 (5.4.3)

COM/ SEL / FAS:

1. It is not allow knots bigger than 3/4" at narrow face or edges
2. It is not allow centerline knots bigger than 1-3/4" at wide face
3. It is not allow edge knots bigger than 3/4" at wide face
4. Maximum permitted slope is 1" in 6"
5. Length of end split and surface split shall be per ASTM D245 (5.4.3)

Notes:

1. Grader shall classify, measure and inspect knots, splits, checks and shakes as Standard ASTM D 245 mandates, for dimension lumber and Beams & stringers.
2. Use allowable values in conjunction of adjusted coefficients.
3. Results are for preliminary design only; not valid for construction unless accompanied by a sealed test report by an accredited laboratory.