Resist rot and decay

- 24F 1.9E True Treated Glulam
- Architectural Appearance
- Resistant to rot and decay
Finally a treated glulam that doesn’t look treated! Rosboro Treated X-Beam™ is finished a full 3½" or 5½" wide, in architectural appearance and it is treated with Hi-Clear II—a clear treatment that leaves the beam a light honey color.

As the leading producer of glulam products in the U.S., Rosboro continues to respond to demand by producing Treated X-Beam. These beams are made from coastal region Douglas fir and then treated to resist rot, decay and insect attack or other conditions that can destroy wood. Installation is easy because the beams are straight and manufactured to match standard framing widths and depths. Backed with a 25-year warranty, Rosboro Treated X-Beam products are an excellent choice for decks, porches and balconies.

X-Beams Treated with Hi-Clear II
Rosboro Treated X-Beam is pressure treated with Hi-Clear II, a clear industrial wood preservative that provides chemical resistance against insect attack, decay, mold, mildew, bacterial growths and is also effective against the Formosan termite. Hi-Clear II is intended to be used in above ground exterior applications. The treatment is clean, non-swelling and non-leaching and leaves the beam a light honey color. For more information on Hi-Clear II, please visit the Rosboro website at www.rosboro.com.

Beams Are Available in Common Sizes
Widths: 3½" and 5 1½"
Depths: 9½", 11 7/8", 14", 16" and 18"

Appearance Classification
Rosboro Treated X-Beam is sized to match standard framing widths. The beams are finished to an Architectural Appearance and are sanded three sides prior to treatment. Grade stamps and treating stamps are applied to the top of the beam for easy identification.
Columns Approved for Ground Contact
Rosboro Treated Columns are pressure treated with a mineral-spirit borne copper naphthenate preservative. The treatment is an ideal fungicide and insecticide for the long-term preservation of glulam columns in both ground contact and above ground uses. The treatment is effective against the dampwood termite, drywood termite and subterranean termites including the Formosan termite. Rosboro recommends that columns be placed on a pier block, but if the column is used in a direct ground contact application, then it should sit in a gravel bed that allows proper drainage. The framing appearance columns are incised and treated with the more aggressive copper naphthenate which is intended for exterior applications. After treatment, the color ranges between chocolate-brown and dark green. Visit Rosboro’s website at www.rosboro.com for more information.

Columns Are Available in Common Sizes:
Widths: 3 1/2", 5 1/2" and 7"
Depths: 3 1/2", 5 1/2" and 7"

Recommended Hardware, Resealing and Finishing
Moisture can accumulate around connections, such as hangers, fasteners, bolts, nails and screws. Rosboro Treated X-Beam provides protection from moisture induced rot and decay at these locations when fabrication is done before treating. Field fabrication, trimming, hole drilling or minor surface damage should be sealed with copper naphthenate, which is available at local home centers. Rosboro has specifically selected treatments that are known to be non-corrosive to metal, however we recommend the use of hangers and fasteners specified for treated wood products such as hot-dip galvanized or stainless steel. Oil-based stains and paints can be applied as a final finish once the treatment has flash off.

Understanding Wet-Use vs. Dry-Use
Wet-use and dry-use are terms that are associated with in-service conditions. Usually a glulam member is exposed to water on an intermittent basis only. Any wetting is typically followed by a drying cycle, and the product never reaches a consistent wet-use condition. This situation is classified as dry-use.

The technical measure of wet-use is accepted as consistent moisture content within the beam of 16% or greater. A wet-use condition is rarely reached unless the beam is submerged in water or subjected to an artificially humid moisture condition. For example, using the chart to the right, a beam in an environment having a constant relative humidity of 80% and a temperature above 70° F will not reach a consistent moisture content of 16% or greater. Since a combination of high relative humidity and temperature outside of this range is seldom reached in the U.S., ambient air conditions rarely result in a wet-use classification. If there is any question regarding use condition, a licensed design professional should be consulted to determine if wet-use design adjustments apply.

To retain an open-air moisture content of at least 16% (wet-use application), a beam must stay in a constant wet environment for a prolonged period (as illustrated above).

Easy and Safe to Work With
Treated X-Beam and Columns not only resist rot and decay but, with simple precautions, the products are safe and easy to work with. The treatment used for Rosboro Treated X-Beam is low in toxicity to humans. However, gloves should be worn when handling treated products and dust masks and eye protection should be worn when cutting treated material. Always follow site, handling and disposal instructions provided by Materials Safety Data Sheets (MSDS) available from the Rosboro website (www.rosboro.com).

Code Recognized
Rosboro glulam is manufactured in accordance with ANSI Standard A190.1, which is a code-recognized national consensus standard for glulam, using wet-use adhesives complying with ASTM Standard D2559. The lay-up combinations EWS 24F-V4 DF/DF and Combination Number 3 are recognized under ICC-ES Report ESR-1940. Rosboro's glulam production is inspected and certified by APA-EWS.

Restricted Uses
Although Rosboro Treated X-Beam and Column products are pressure treated, they should not be used in marine applications such as docks and marinas or in conditions where the product is in contact with standing water.
Rosboro Treated X-Beam: Design Values

<table>
<thead>
<tr>
<th>Product</th>
<th>Layup Combination</th>
<th>Flexural Stress $F_b$ (psi)</th>
<th>Compression Perpendicular to Grain (psi) $F_c$</th>
<th>Shear $F_v$ (psi)$^2$</th>
<th>MOE (10^6 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tension Zone</td>
<td>Compression Zone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treated X-Beam</td>
<td>24F-V4</td>
<td>2400</td>
<td>1850</td>
<td>650</td>
<td>265</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.80</td>
<td>0.80</td>
<td>0.53</td>
<td>0.875</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.8</td>
<td>1.9</td>
<td>0.833</td>
<td></td>
</tr>
</tbody>
</table>

(1) The tabulated values are for dry conditions of use (moisture content of less than 16%). For Wet-Use, the design values shall be multiplied by the Wet-Use factor given at the bottom of the table.

(2) $F_b$ shall be adjusted by the volume effect factor using the following formula:

$$C_v = \frac{(5.125/b)^{1/3} \times (12/d)^{1/3} \times (21/L)^{1/3}}{1.0}$$

where $b$ = beam width (in.),
$d$ = beam depth (in.),
$L$ = beam length (ft.),
$x = 10$

(3) For non-prismatic members, notched members, members subject to impact or cyclic loading, or shear design of bending members at connections (NDS-12, 3.4.3.3), the design shear ($F_v$) shall be multiplied by a factor of 0.72.

Minimum Bearing Length (in.)

<table>
<thead>
<tr>
<th>Product</th>
<th>Width (in.)</th>
<th>Reaction (lbf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated Glulam - Dry-Use  ($F_c = 650$ psi)</td>
<td>3 1/2</td>
<td>1.50 1.76 2.20 2.64 3.08 3.52 3.96 4.40 4.57 5.00 5.78 6.50 7.05 7.69 8.34 9.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 24.00 26.00 28.00 30.00</td>
</tr>
<tr>
<td></td>
<td>5 1/2</td>
<td>1.50 1.50 1.50 1.68 1.96 2.24 2.53 2.80 3.16 3.53 3.92 4.31 4.71 5.11 5.51 6.01 6.51 7.01 7.51 8.01 8.51 9.01 9.51 10.01 11.01 12.01 13.01 14.01 15.01 16.01 17.01 18.01 19.01 20.01 21.01 22.01 23.01 24.01 25.01 26.01 27.01 28.01 29.01 30.01</td>
</tr>
<tr>
<td>Treated Glulam - Wet-Use ($F_c = 392$ psi)</td>
<td>3 1/2</td>
<td>2.49 3.32 4.15 4.98 5.81 6.63 7.46 8.29 9.11 10.03 11.01 12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00 23.00 24.00 25.00 26.00 27.00 28.00 29.00 30.00</td>
</tr>
<tr>
<td></td>
<td>5 1/2</td>
<td>1.58 2.11 2.64 3.17 3.69 4.22 4.75 5.28 6.00 7.39 8.64 9.90 10.16 11.43 12.70 13.97 15.24 16.51 17.78 19.05 20.32 21.59 22.86 24.13 25.40 26.67 27.94 29.21 30.48 31.75 33.02 34.29 35.56 36.83 38.10 39.37 40.64</td>
</tr>
</tbody>
</table>

(1) Minimum bearing length is 1 1/2".

(2) Bearing across full width of the beam is required.

(3) Bearing length shall be adjusted when the allowable bearing stress of the supporting member is less than the tabulated $F_c$ values of the glulam beam.

Rosboro’s Treated X-Beam is a 24F-V4 glulam that is manufactured with an unbalanced lay-up. In unbalanced beams, the strength of the lumber used on the beams tension side is greater than the lumber used on the corresponding compression side (top). As a result, unbalanced beams may not carry as much load in a multi-span or cantilever application. The load carrying capacity is reduced as the span length or cantilever length is increased. It is a common misconception that unbalanced beams cannot be used in multi-span or cantilever applications. The table on page 5 lists the loads that can be carried by an unbalanced Treated X-beam in both simple-span and multi-span applications. The top or compression face is clearly marked with a “TOP” and treatment stamp.
### Treated X-Beam Roof Non-Snow (plf)

<table>
<thead>
<tr>
<th>Width (in.)</th>
<th>Depth (in.)</th>
<th>Load Condition</th>
<th>9' 1/2</th>
<th>11' 1/2</th>
<th>13'</th>
<th>14'</th>
<th>15'</th>
<th>16'</th>
<th>18'</th>
<th>20'</th>
<th>24'</th>
<th>28'</th>
<th>32'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple</td>
<td>3' 1/2</td>
<td>Fc = 2,400 psi</td>
<td>Fv = 265 psi (LDF = 1.15)</td>
<td>Treated Beam</td>
<td>EW S 24 F-V4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fc = 2,400 psi</td>
<td>Fv = 265 psi (LDF = 1.15)</td>
<td>Treated Beam</td>
<td>EW S 24 F-V4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Treated X-Beam Roof Snow Loads (plf)

<table>
<thead>
<tr>
<th>Width (in.)</th>
<th>Depth (in.)</th>
<th>Load Condition</th>
<th>9' 1/2</th>
<th>11' 1/2</th>
<th>13'</th>
<th>14'</th>
<th>15'</th>
<th>16'</th>
<th>18'</th>
<th>20'</th>
<th>24'</th>
<th>28'</th>
<th>32'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple</td>
<td>3' 1/2</td>
<td>Fs = 2,400 psi</td>
<td>Fs = 265 psi (LDF = 1.15)</td>
<td>Treated Beam</td>
<td>EW S 24 F-V4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fs = 2,400 psi</td>
<td>Fs = 265 psi (LDF = 1.15)</td>
<td>Treated Beam</td>
<td>EW S 24 F-V4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

1. SPAN is the on-center distance between supports and is valid for simple- or multiple-span applications as noted in the table.
2. Dry-use conditions.
3. Total load deflection limit = Span/180.
4. Live load ≤ 0.75 x Total load.
5. Full lateral support on the compression side.
6. The values are based on the X-Beam design properties listed in the table and include the beam weight (assumed to be 36.5 plf).
### Treated X-Beam Floor Loads (plf)

**Dry-Use**

- $F_s = 2,400$ psi
- $F_0 = 265$ psi
- $E = 1.8 \times 10^6$ psi
- $F_{on} = 650$ psi
- EWS 24F-V4

#### Allowable Axial Loads (Pounds) for Combination No. 3 Glulam Columns – Dry-Use and Wet-Use

<table>
<thead>
<tr>
<th>Effective Column Length (ft.)</th>
<th>Width = 5 1/2 in.</th>
<th>Depth = 5 1/2 in. (4 lams) Load Duration Factor</th>
<th>Depth = 5 1/2 in. (4 lams) Load Duration Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>1.15</td>
<td>1.25</td>
<td>1.00</td>
</tr>
<tr>
<td>8</td>
<td>24,850</td>
<td>29,050</td>
<td>30,250</td>
</tr>
<tr>
<td>9</td>
<td>24,130</td>
<td>25,810</td>
<td>26,790</td>
</tr>
<tr>
<td>10</td>
<td>21,580</td>
<td>22,890</td>
<td>23,640</td>
</tr>
<tr>
<td>11</td>
<td>19,300</td>
<td>20,330</td>
<td>20,930</td>
</tr>
<tr>
<td>12</td>
<td>17,290</td>
<td>18,120</td>
<td>18,600</td>
</tr>
<tr>
<td>13</td>
<td>15,540</td>
<td>16,220</td>
<td>16,610</td>
</tr>
<tr>
<td>14</td>
<td>14,020</td>
<td>14,580</td>
<td>14,960</td>
</tr>
<tr>
<td>15</td>
<td>12,690</td>
<td>13,160</td>
<td>13,430</td>
</tr>
<tr>
<td>16</td>
<td>11,540</td>
<td>11,930</td>
<td>12,160</td>
</tr>
<tr>
<td>17</td>
<td>10,530</td>
<td>10,860</td>
<td>11,060</td>
</tr>
<tr>
<td>18</td>
<td>9,640</td>
<td>9,930</td>
<td>10,090</td>
</tr>
<tr>
<td>19</td>
<td>8,850</td>
<td>9,100</td>
<td>9,250</td>
</tr>
<tr>
<td>20</td>
<td>8,160</td>
<td>8,370</td>
<td>8,500</td>
</tr>
<tr>
<td>21</td>
<td>7,540</td>
<td>7,730</td>
<td>7,840</td>
</tr>
</tbody>
</table>

#### Design property notes for both Dry-Use and Wet-Use service conditions

1. The tabulated allowable loads are for one-piece glulam members with a minimum of 12 laminations (Combination 3) without special tension lamina.

2. Applicable service conditions are dry or wet as tabulated.

3. The tabulated allowable loads are for simply loaded columns subjected to a maximum eccentricity of either 1/6 column width or 1/6 column depth, whichever is worse. For side loads, other eccentric loads, or other combined axial and flexural loads, see 2012 NDS.

4. The column is assumed to be unbraced, except at the column ends, and the effective column length is equal to the actual column length.

5. Design properties for normal load duration and dry-use service conditions:
   - Compression parallel to grain ($F_s = 2,300$ psi in dry use or $0.73 \times 2,300$ psi for wet use).
   - Modulus of elasticity ($E_s = 1.9 \times 10^6$ psi in dry use or $0.833 \times 1.9 \times 10^6$ psi for wet use).
   - Flexural stress when loaded parallel to wide faces of laminations ($F_{on} = 2,100$ psi in dry use or $0.8 \times 2,100$ psi in wet use).
   - Flexural stress when loaded perpendicular to wide faces of laminations ($F_{on} = 2,000$ psi in dry use or $0.8 \times 2,000$ psi in wet use).
   - Volume factor for $F_s$ is in accordance with 2012 NDS. Size factor for $F_{on}$ is $12/40^{1/2}$, where $d$ is the equal to the column width in inches.
### Treated X-Beam Floor Loads (plf)

(LDF = 1.0)

**Dry-Use**

- \( F_v = 2,400 \text{ psi} \)
- \( F_l = 265 \text{ psi} \)
- \( E = 1.8 \times 10^6 \text{ psi} \)
- \( F_c = 650 \text{ psi} \)
- EWS 24F-V4

**Deck Joist Span**

**Beam Span Between Supports**

(Varies)

#### Load Glulam Span (ft)

<table>
<thead>
<tr>
<th>Deck Joist Span (ft)</th>
<th>8'</th>
<th>10'</th>
<th>12'</th>
<th>14'</th>
<th>16'</th>
<th>18'</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 PSF Live Load</td>
<td>10</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
</tr>
<tr>
<td>12</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
</tr>
<tr>
<td>14</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
</tr>
<tr>
<td>16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
<td>3/8 x 9/16</td>
</tr>
<tr>
<td>18</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
</tr>
<tr>
<td>20</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
</tr>
<tr>
<td>22</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
<td>3/8 x 14</td>
</tr>
</tbody>
</table>

- **40 PSF Live Load**
- **10 PSF Dead Load**

(1) Deck shall be designed and constructed in compliance with the applicable codes.

(2) Glulam is subject to uniform gravity loads only.

(3) Maximum deflection under live load = span/360. Maximum deflection under total load = span/240.

(4) Beam weight (preservative treated) = 36.5 pcf.

(5) Minimum bearing length for glulam with full glulam width = 3 1/2 inches.
ROSBORO
Treated X-Beam™
25-Year Limited Warranty

Rosboro, LLC (“Rosboro”) grants this limited warranty to the original residential purchaser of its Rosboro Treated X-Beam™ columns and laminated beams (collectively “Products”), subject to the terms and conditions stated on the full warranty, for a period of 25 years from delivery. Rosboro warrants that the Products will conform to specifications, be free from defects in materials and workmanship, and not fail due to rot, fungal decay, or termite damage, provided that the Products are installed, finished and maintained in accordance with Rosboro’s published specifications and in accordance with accepted engineering standards.

Please visit the technical library on our website to download our 25-year warranty in its entirety.

More Glulam Products From Rosboro
In addition to Treated X-Beam, Rosboro manufacturers a full line of laminated timber that fits any application.

X-Beam™: The industry’s first full-width stock glulam in architectural appearance, the time and money-saving X-Beam is available in widths of 3½” and 5½”, I-Joist compatible and traditional glulam depths as well as columns.

Custom Glulam: Our industry-leading glulam is available in custom sizes, curved shapes and in a variety of wood species that give our customers greater flexibility and the convenience of combining custom orders with other building materials.

Rosboro isDesign™ Software
Created by Calculated Structured Designs, isDesign uses the powerful .NET technology and takes all of the guesswork out of specifying and using glulam. This software allows users to easily enter the span and load conditions for a given project and automatically determine the best product for that application. Users can also calculate multiple spans, point loads, cantilevers, and other applications. isDesign is ideal for architects, designers, and builders and recognizes all United States building codes while offering printable design calculations and beam capacities. Visit our website for more information.

Rosboro X-Beam and Treated X-Beam are now included in the MiTek Sapphire Product Suite. Sapphire users can now design with Rosboro X-Beam and Treated X-Beam.

Rosboro
Growing Today • Building Tomorrow®

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Web: www.rosboro.com