

Special Specification 4045

Pressure Treated Timber Bridge Deck (Glulam)



1. DESCRIPTION

Furnish and place pressure treated, structural glued laminated timber (glulam) bridge deck.

2. MATERIALS

2.1. **Fabrication.** Furnish glued laminated timber deck panels from a fabricator certified by the American Institute of Timber Construction (AITC) or who is a member of the APA Engineered Wood Systems (APA EWS) quality assurance program for trademarked glulam under the ANSI/AITC A 190.1 standards. AITC maintains a list of certified fabricators of structural glued laminated timber. APA – The Engineered Wood Association maintains a list of APA EWS trademarked glulam fabricators. Fabricate glulam panels in accordance with details shown on the plans and in accordance with the requirements of AITC A 190.1, *Structural Glued Laminated Timber*, latest edition. Provide glulam panels with vertically laminated timber, visually graded Southern Pine, AITC Combination Symbol 46 to 50. Appearance grade will be industrial. Provide an AITC quality inspection mark or an APA EWS trademark as applicable on each glulam panel.

2.2. **Treatment.** For panels in vehicular use only, treat timber for glulam panels with Pentachlorophenol (PCP, AWP Standard P35), Chromated Copper Arsenate Type C (CCA-C, AWP Standard P23), or Copper Napthenate (CuN, AWP Standard P36).

If CCA-C treatment is used, pressure treat with CCA-C in accordance with the American Wood Protection Association (AWPA) Standards U1 and T1, Commodity Specification F (to a minimum net retention of 0.4 lb/ft³). Cut all laminations to proper size. Treat the laminations, and then kiln dry to a moisture content of 19% or less. Glue the laminations immediately after drying.

If PCP or CuN treatment is used, pressure treat in accordance with AWP Standards U1 and T1, Commodity Specification F (to a minimum net retention of 0.60 lb/ft³ for PCP or 0.060 lb/ft³ for CuN). Cut all laminations to proper size, and then dry to a moisture content of 19% or less. Glue the laminations immediately after drying, and treat the laminated panel after gluing. Allow sufficient time for adhesive curing before pressure treatment. Treating the laminations prior to gluing is permissible with PCP Type C treatment.

Inspect and certify the treatment used in accordance with AWP Standard M2. Furnish a completed Texas Department of Transportation "Certification of Compliance" Form 2148 with every shipment of treated glulam panels.

2.3. **Sealers.** Provide closed bituminous mastic sealed joints between glulam panels except where gapped joints are indicated on the plans. For closed bituminous mastic joints, provide a cold asphalt-base emulsion in accordance with DMS-6300, "Waterproofing."

Where gapped joints are indicated in the plans, provide silicone sealed joints with backer rods. For silicone sealed gapped joints, use Class 5, 7 or 8 Joint Sealant and backer rod in accordance with DMS 6310, "Joint Sealants and Fillers." The silicone sealant provided, even if listed as prequalified in the Material Producer List, must be evaluated by the Construction Division for use with wooden joints (Tex525-C, Part III, Tensile strength and 24-Hour Extension Test.) prior to construction. The backer rod and silicone seal must extend the full deck width.

2.4. **Hardware.** For bolts used to attach deck to beams, use ASTM A307 timber or dome-head bolts of 2 in. minimum head diameter. For C clips, use ASTM A48, Class 30 cast iron. Provide washers between nuts and

C clips. Galvanize hardware in accordance with Item 445, "Galvanizing." Do not provide electrodeposited zinc coated hardware.

- 2.5. **Shop Drawings.** Submit shop drawings electronically for the complete assembly as documented in the "Guide to Electronic Shop Drawing Submittal" available on the internet.
- 2.6. **Storage and Handling.** Store and handle glulam panels according to Item 490, "Timber Structures."

3. CONSTRUCTION

Place deck panels after beams are set in their permanent final location. Use beam locations as a template for hole placement in the glulam panel. After each panel is placed and aligned, drill and treat holes and then install attachment hardware. Do not drill holes until the beam locations are approved by the Engineer. Liberally treat all cut surfaces and field drilled holes with a Copper Napthenate solution in accordance with Item 492, "Timber Preservative and Treatment."

Seal between panels and at joint openings. Ensure that joint surfaces or openings are dry and clean of debris prior to installation of sealant. Place the sealant according to the manufacturer's recommendations. Block the ends of the silicone sealed joints with removable forms during sealant placement. Apply a suitable bond breaker to these end forms and remove them after the sealant has cured.

4. MEASUREMENT

Measurement for Pressure Treated Timber Deck (Glulam) will be measured in square feet of decking. This will include hardware used to attach deck to beams, bituminous mastic sealer, silicone joint sealant, and glulam panels.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under Measurement will be paid for at the unit price bid for "Pressure Treated Timber Deck (Glulam)." This price will be full compensation for furnishing all materials, equipment, supervision, labor, scaffolding and incidentals necessary to complete the work required by this item.