



**SPECIAL PROVISIONS
FOR
GLUE-LAMINATED CONSTRUCTION**

**Des Moines County
EDP-0977(653)--7Y-29**

**Effective Date
June 15, 2021**

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

155068.01 DESCRIPTION.

A. Summary.

Section includes framing using structural glued-laminated timber.

B. Definitions.

Structural Glued-Laminated (Glulam) Timber: An engineered, stress-rated timber product assembled from selected and prepared wood laminations bonded together with adhesives and with the grain of the laminations approximately parallel longitudinally.

C. Performance Requirements.

Structural Performance: Structural glued-laminated timber and connectors shall withstand the effects of structural loads shown on Plans without exceeding allowable design working stresses listed in AITC 117 or determined according to ASTM D 3737 and acceptable to authorities having jurisdiction.

D. Action Submittals.

1. Product Data: For each type of product indicated.
 - a. Include data on lumber, adhesives, fabrication, and protection.
 - b. For connectors, include installation instructions.
2. Shop Drawings.
 - a. Show layout of structural glued-laminated timber system and full dimensions of each member.
 - b. Indicate species and laminating combination, adhesive type, and other variables in required work.
 - c. Include large-scale details of connections.

3. Samples: Full width and depth, 24 inches long, showing the range of variation to be expected in appearance of structural glued-laminated timber. Apply specified factory finish to three sides of half-length of each Sample.

E. Quality Assurance.

1. Provide material certificates upon request: For preservative-treated wood products, from treater or manufacturer. Indicate type of preservative used, the manufacturer of the preservative, target preservative retention, what standards were followed in the treating process, and results of any assays for preservative retention and penetration.
2. Manufacturer Qualifications: Provide factory-glued structural units produced by an AITC- or APA-licensed firm that is certified for chain of custody by an FSC-accredited certification body. Factory mark each piece of structural glued-laminated timber with AITC Quality Mark or APA-EWS trademark. Place mark on surfaces that will not be exposed in the completed Work.
3. Quality Standard: Comply with AITC A190.1.

F. Delivery, Storage, and Handling.

1. General: Comply with provisions in AITC 111.
2. Individually wrap members using plastic-coated paper covering with water-resistant seams.

155068.02 MATERIALS.

A. Structural Glued-Laminated Timber.

1. General: Provide structural glued-laminated timber that complies with AITC 117 or research/evaluation reports acceptable to authorities having jurisdiction.
 - a. Provide structural glued-laminated timber capable of long term outdoor exposure.
 - b. Provide structural glued-laminated timber made from single species.
 - c. Provide structural glued-laminated timber made from solid lumber laminations; do not use laminated veneer lumber.
 - d. Provide structural glued-laminated timber made with wet-use adhesive complying with AITC A190.1.
 - e. Adhesive shall not contain urea-formaldehyde resins.
2. Certified Wood: Glulams shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
3. Species and Grades for Structural Glued-Laminated Timber: Alaskan Yellow Cedar in grades needed to comply with Article SP-155068.01, C.
4. Species and Grades for Beams:
 - a. Species and Beam Stress Classification: Alaskan Yellow Cedar, 20F-1.5E
 - b. Lay-up: V13 Balanced
5. Appearance Grade: Premium, complying with AITC 110.
 - a. For Premium and Architectural appearance grades, fill voids as required by AITC 110.
 - b. For Premium appearance grade, use clear wood inserts, of matching grain and color, for filling voids and knot holes more than 1/4 inch wide.

6. End Sealer: Manufacturer's standard, transparent, colorless wood sealer that is effective in retarding the transmission of moisture at cross-grain cuts and is compatible with indicated finish.
7. Penetrating Sealer: Manufacturer's standard, transparent, penetrating wood sealer that is compatible with indicated finish and use.

B. Timber Connectors.

1. General: Unless otherwise indicated, fabricate from the following materials:
 - a. Structural-steel shapes, plates, and flat bars complying with ASTM A 36 Galvanized.
 - b. Hot-rolled steel sheet complying with ASTM A 1011, Structural Steel, Type SS, Grade 33.
2. Provide bolts, 3/4 inch unless otherwise indicated, complying with ASTM A 307, Grade A; nuts complying with ASTM A 563; and, where indicated, flat washers
3. Hot-dip galvanize steel assemblies and fasteners after fabrication to comply with ASTM A 123 or ASTM A 153.

C. Fabrication.

1. Shop fabricate for connections to greatest extent possible, including cutting to length and drilling bolt holes. Dress exposed surfaces as needed to remove planing and surfacing marks.
2. Camber: Fabricate horizontal and inclined members of less than 1:1 slope with either circular or parabolic camber equal to 1/500 of span.
3. End-Cut Sealing: Immediately after end cutting each member to final length and after preservative treatment, apply a saturation coat of end sealer to ends and other cross-cut surfaces, keeping surfaces flood coated for not less than 10 minutes.
4. Seal Coat: After fabricating, sanding, and end-coat sealing, apply a heavy saturation coat of penetrating sealer on surfaces of each unit, except for preservative-treated wood where treatment included a water repellent.

155068.03 CONSTRUCTION.

A. Examination.

1. Examine substrates in areas to receive structural glued-laminated timber, with Installer present, for compliance with requirements, installation tolerances, and other conditions affecting performance of structural glued-laminated timber.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Installation.

1. General.
 - a. Erect structural glued-laminated timber true and plumb, and with uniform, close-fitting joints.
 - b. Provide temporary bracing to maintain lines and levels until permanent supporting members are in place.
 - c. Lift with padded slings and protect corners with wood blocking.
 - d. Install structural glued-laminated timber to comply with Shop Drawings.
 - e. Install timber connectors as indicated.

2. Fit structural glued-laminated timber by cutting and restoring exposed surfaces to match specified surfacing.
 - a. Predrill for fasteners using timber connectors as templates.
 - b. Dress exposed surfaces as needed to remove planing and surfacing marks.
 - c. Coat cross cuts with end sealer.
3. Cutting: Avoid cutting after fabrication. Where field fitting is unavoidable, comply with requirements for shop fabrication.

C. Adjusting.

Repair damaged surfaces after completing erection. Replace damaged structural glued-laminated timber if repairs are not approved by Engineer.

D. Protection.

1. Do not remove wrappings on individually wrapped members until they no longer serve a useful purpose including protection from weather, sunlight, soiling, and damage from work of other trades.
2. Coordinate wrapping removal with finishing work.
3. Slit underside of wrapping to prevent accumulation of moisture inside the wrapping.

155068.04 METHOD OF MEASUREMENT.

Glue-Laminated Construction will not be measured for payment.

155068.05 BASIS OF PAYMENT.

Payment for this item will be incidental to line item Shade Structure.