

SECTION 06 18 13

STRUCTURAL GLUED LAMINATED TIMBER

PART 1 GENERAL

1.1 SUMMARY

- A. This section includes structural glued laminated timber elements.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.3 REFERENCES

- A. American Institute of Timber Construction (AITC)
1. AITC Timber Construction Manual - Latest Edition
 2. AITC 109 - Standard for Preservative Treatment for Glulam
 3. AITC 110 - Standard Appearance Grades for Glulam
 4. AITC 111 - Recommended Practice for the Erection of Glulam
 5. AITC 117 - Design Standard Specifications for Glulam
 6. AITC 200 - Inspection Manual for Glulam (Separate Publication)
- B. National Design Specifications for Stress-Grade Lumber And Its Fastenings
- C. American Institute of Steel Construction (AISC)
- D. American Society of Testing and Materials (ASTM):
- E. American Wood Preservers Association (AWPA)

1.04 DEFINITIONS

- A. Glued-Laminated timber is hereby defined to include wood members fabricated from 1" or 2" nominal thickness lumber glued face-to-face with the grain of all laminated approximately parallel longitudinally. Glued-Laminated timber is also referred to as glulam.

1.05 SYSTEM DESCRIPTION

A. Design Requirements and Performance Requirements:

1. The extent of glued laminated timber work is shown on the drawings either by terminology used in this specification or by the abbreviations as indicated.
2. Provide sizes and shapes shown on the plans. Final cross sections will be based on manufacturers' standard widths and depths. Manufacturer to provide design values (stresses) to fulfill structural demand in accordance with applicable provisions of AITC 117.
3. All laminated wood members must be manufactured by a single AITC licensed manufacturer bearing AITC stamp on each member.
4. The glulam manufacturer or laminator is to be fully responsible for the structural integrity of the material they furnish. The laminator shall have an Engineer in their permanent

employment to certify his design by stamping the shop drawings. The engineer must be registered in the State of Kansas, no exceptions.

1.06 SUBMITTALS

A. General:

1. Submit in accordance with Section 1300.

B. Product Data:

1. Submit manufacturer's descriptive literature and product specifications.
2. Submit certification, indicating glued-laminated timbers comply with requirements of the ANSI/AITC A190.1-latest edition.

C. Shop Drawings:

1. Submit shop drawings showing full dimensions of each member. Indicate species and stress grade of lumber, type of glue, and other variables in required work. Manufacturer shall furnish (4) sets of shop drawings for architect's approval prior to fabrication. The general contractor shall verify dimensions and be responsible for coordinating same.

D. Samples:

1. Submit samples of standard factory stain colors for architect's approval prior to fabrication.

1.07 QUALITY ASSURANCE

A. Standards

1. Comply with "Structural Glued-Laminated Timber" ANSI/AITC A190.1- latest edition.

B. Manufacturer

1. Provide factory-glued timber units, produced by an AITC licensed firm, qualified to issue the AITC "Quality Inspected" Mark. Factory mark each piece of glued-laminated timber with the AITC Quality Inspected Mark. Place AITC Mark on timber surfaces which will not be exposed in completed work.

C. Erector

1. Erector Qualification: company specializing in the erection of glue laminated units with a minimum of 10 years documented experience.

1.08 PACKING, DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading:

1. Before shipping or exposing to outdoor conditions, individually wrap each member with manufacturer's standard opaque, durable, water-resistant, plastic coated paper covering with water resistant seams.
2. Schedule delivery and installation of glued-laminated wood members to avoid extended on-site storage. Comply with AITC 111 - "Recommended Practice for Protection of Structural Glued-Laminated Timber during Transit, Storage and Erection".

B. Storage and Protection:

1. Keep laminated wood members as dry as possible during all phases. General contractor is responsible for protection of the construction. If jobsite storage is necessary, place members on blocking a minimum of 6" off the ground, away from ponding water, avoiding ground contact and separated with blocking to allow air circulation around each member. Cover glulam with a waterproof covering which will not allow ultraviolet ray penetration of the materials at the jobsite or at temporary storage area.
2. Time of removal of factory wrapping is optional, but it must be emphasized that the factory applied wrapping provides temporary protection from moisture, soiling, and damage in handling and in-transit only. If further utilization of the wrap is desired for protection after shipment, the

members should be inspected and provided with additional protection as necessary. If it is impractical to replace wrapping, ALL of it should be removed. Do not leave members partially exposed due to potential sun bleaching. Do not allow moisture to accumulate inside wrapping.

3. Do not remove wrapping on individually wrapped members until it will serve no useful purpose, including protection from the weather, soiling and damage from other work trades.

4. It is imperative that the field handling instructions sheet (brown envelope) that comes with the material shipment be thoroughly reviewed before unloading.

1.08 PROJECT/SITE CONDITIONS

A. Environmental Requirements

1. After completion of glulam work the general contractor is responsible for proper protection of all wood members. Initial building heat shall be elevated gradually to the desired level. To minimize checking the relative humidity of the building shall not be reduced rapidly.

1.09 WARRANTY

A. Comply with provisions of Section 01700.

B. Warrant installed glued laminated structural units to be free from defects in material and workmanship for a period of 1 year.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers:

1. Manufacture of glued laminated timber shall be by Structural Wood Systems - (www.structuralwood.com - Contact: Construction Sales Co., Inc. - 1-800-526-9663 or 870 234 6474).

2. Other manufacturers will be considered upon written request for approval which has been received by the Architect 10 days prior to bid date. Each request shall include the name of the manufacturer, product data, and a list of 5 similar size projects in the area in the past year which the manufacturer seeking approval has provided.

2.02 MATERIALS

A. Materials:

1. Lumber shall comply with ANSI/AITC A190.1 and applicable lumber association standards cited therein required to achieve glued laminated timber requirements for allowable stress, appearance, fabrication limitations and species.

2. Lumber species shall be Southern Pine.

3. Adhesives shall be wet-use (waterproof) complying to ANSI/AITC A190.1

4. **(Optional)** – Pressure Preservative treat members which are directly exposed to the weather or in constant moisture (ie. pool enclosure) in conformance with AITC 109. Pressure treat the lumber prior to gluing with Pentachlorophenol in mineral spirits to .3 lbs/cuft retention for above grade applications and to .6lbs/cuft for below grade. Two coats of matte varnish to be applied after treatment and staining.

2.03 FABRICATION

A. Wood:

1. Lumber shall be fabricated in accordance with ANSI/AITC A190.1.

2. Appearance Grade shall be AITC Premium.

3. Except as otherwise indicated, fabricate horizontal straight load-bearing members, with a camber as shown on the drawings.

4. Drilling, end cutting, dapping, and addition fabrication to be done in AITC manufacturers plant.

B. Steel Connections:

1. Provide fabricated steel connections to join laminated to laminated, and laminated to supports, exclusive of items embedded in concrete, masonry, welded to structural steel, or connected to stud walls.
2. Steel work to conform to AISC Specifications.
3. Steel shall conform to Mild Steel M-1020.
4. Bolts shall conform to ASTM A-307 and are primed painted.
5. Bolts to be provided by glulam manufacturer for steel connections provide by others.
6. Shop paint fabricated steel with one coat of rust inhibitive primer.
7. **Note:** Connections and bolts directly exposed to the weather, not under roof covered, or in natatorium / swimming pool enclosure shall be hot dipped galvanized. Stainless bolts to be used in natatoriums.

2.04 FINISHES

A. Wood:

1. Glue laminated members to receive a factory finish of (1) coat of an approved standard semi-transparent stain offered by the manufacturer.
2. Immediately after end-cutting each member to final length, the factory shall apply a saturation coat of end sealer to ends and other cross-cut surfaces.

PART 3 EXECUTION

3.01 ACCEPTABLE INSTALLERS

A. Erector:

1. Installation of glulam timbers shall be by manufacturer's installers where available.
2. Other installers shall be considered upon written request for approval which has been received by the Architect 10 days prior to bid date. Each request shall include the name of the installer, years in business, insurance coverage, and a list of 5 similar size projects in the area in the past year which the installer seeking approval has provided.

3.02 EXAMINATION

- A.** Examine conditions and proceed with work in accordance with Section 01400.

3.03 PREPARATION

- A.** Anchor bolt settings / or embedded weld plates and bearing elevations (not Structural Wood Systems responsibility) are extremely critical and must be held within 1/8" of the dimensions shown on the shop drawings. The general contractor is responsible for setting the anchor bolts and/or bearing elevations in the field.

3.04 ERECTION, INSTALLATION, APPLICATION INSTRUCTION

- A.** Comply with AITC 111 "Recommended Practice For the Erection of Glulam", manufacturer's instructions, and approved shop drawings. Handle and temporarily support members to prevent damage. All members must be adequately braced until the complete structural system (all pertinent construction materials) has been installed. Correction of minor misfits and a reasonable amount of cutting, reaming, re-drilling, or alignment with drift pins will be considered a legitimate expense of erection.

END OF SECTION