

## SECTION 061800 - GLUED-LAMINATED CONSTRUCTION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
1. Structural glued-laminated timber.
  2. Timber connectors.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Product Data: For each type of product.
1. Include data on lumber, adhesives, fabrication, and protection.
  2. For preservative-treated wood products. Include chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
  3. For connectors. Include installation instructions.
- B. Delegated Design Drawings:
1. Show layout of structural glued-laminated timber system and full dimensions of each member.
  2. Indicate species and laminating combination.
  3. Include large-scale details of connections.
  4. Submit connector layout drawings for all glued laminated structural connectors and shall be signed and sealed by the responsible design professional.
    - a. Include signed and sealed computer-generated design calculations for all connector types.
  5. Identify location and magnitude of design loads on layouts and in connector calculations.
  6. Identify metal connectors (joist, beam, post cap, anchors, etc.) by manufacturer and model number. Include a list of accessories required for installation at each connector (blocking, squash blocks, stiffeners, fasteners, etc.). Include allowable design loads for selected metal connectors in design calculation analysis.
  7. Identify manufacturer's recommended connector installation details in layouts.
  8. Provide documentation that allowable design stresses comply with allowable design properties of each connector product indicated.
- C. Delegated Design Submittal: For all glued-laminated structural connections. For connectors indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- D. Certificates of Conformance: Issued by a qualified testing and inspecting agency indicating that structural glued-laminated timber complies with requirements in ANSI A190.1.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: An AITC- or APA-EWS-licensed firm.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

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

#### 1.6 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Division 01 Section "Quality Requirements," to design structural glued-laminated timber and connectors.
- B. Structural Performance: Structural connectors are to be capable of withstanding the full allowable reaction of the supported member shown on the Drawings within limits and under conditions indicated without exceeding allowable design working stresses listed in ANSI 117 or determined according to ASTM D3737 and acceptable to authorities having jurisdiction.
- C. Seismic Performance: Structural connectors are to withstand the effects of earthquake motions determined according to ASCE/SEI7

### PART 2 - PRODUCTS

#### 2.1 STRUCTURAL GLUED-LAMINATED TIMBER

- A. General: Provide structural glued-laminated timber that complies with ANSI A190.1 and ANSI 117 or research/evaluation reports acceptable to authorities having jurisdiction.
  - 1. Factory mark each piece of structural glued-laminated timber with AITC Quality Mark or APA-EWS trademark. Place mark on surfaces that are not exposed in the completed Work.
  - 2. Provide structural glued-laminated timber made with wet-use adhesive complying with ANSI A190.1.
- B. Species and Grades for Structural Glued-Laminated Timber: Southern pine that complies with structural properties indicated.
- C. Species and Grades for Beams:
  - 1. Species and Beam Stress Classification: Southern pine, 24F-1.8E.
  - 2. Lay-up: Either balanced or unbalanced.
- D. Appearance Grade: Framing, complying with AITC 110.

## 2.2 TIMBER CONNECTORS

- A. Materials: Unless otherwise indicated, fabricate from the following materials:
  - 1. Structural-steel shapes, plates, and flat bars complying with ASTM A36/A36M.
  - 2. Round steel bars complying with ASTM A575, Grade M 1020.
  - 3. Hot-rolled steel sheet complying with ASTM A1011/A1011M, Structural Steel, Type SS, Grade 33.
- B. Fabricate connectors as required by the Delegated Designer.
- C. Finish steel assemblies and fasteners with rust-inhibitive primer, 2-mil (0.05-mm) dry film thickness.

## 2.3 MISCELLANEOUS MATERIALS

- A. 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.
- B. Penetrating Sealer: Manufacturer's standard, transparent, penetrating wood sealer that is compatible with indicated finish.

## 2.4 FABRICATION

- A. Shop fabricate for connections to greatest extent possible, including cutting to length and drilling bolt holes.
- B. Camber: Fabricate horizontal and inclined members of less than 1:1 slope with either circular or parabolic camber equal to 1/500 of span.
- C. End-Cut Sealing: Immediately after end cutting each member to final length, apply a saturation coat of end sealer to ends and other cross-cut surfaces, keeping surfaces flood coated for not less than 10 minutes.
- D. Seal Coat: After fabricating, sanding, and end-coat sealing, apply a heavy saturation coat of penetrating sealer on surfaces of each unit.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General: Erect structural glued-laminated timber true and plumb and with uniform, close-fitting joints. Provide temporary bracing to maintain lines and levels until permanent supporting members are in place.

### 3.2 ADJUSTING

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

### 3.3 PROTECTION

- A. 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.
  - 1. Slit underside of wrapping to prevent accumulation of moisture inside the wrapping.

END OF SECTION 061800