

## **SECTION 06 1000 - ROUGH CARPENTRY**

### **PART 1 GENERAL**

#### **1.01 SECTION INCLUDES**

- A. Preservative treated wood materials.
- B. Fire retardant treated wood materials.
- C. Concealed wood blocking, nailers, and supports.
- D. Sheathing Panels: walls, floor, and roof.

#### **1.02 RELATED REQUIREMENTS**

- A. Section 07 2500 - Weather Barriers: Water-resistive barrier over sheathing.

#### **1.03 REFERENCE STANDARDS (LATEST EDITION)**

- A. AFPA (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; American Forest and Paper Association.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- C. ASTM D2898 - Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing.
- D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- E. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood Protection Association.
- F. PS 1 - Structural Plywood.
- G. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce).
- H. SPIB (GR) - Grading Rules; Southern Pine Inspection Bureau, Inc..

#### **1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Structural Composite Lumber: Submit manufacturer's published structural data including span tables, marked to indicate which sizes and grades are being used; if structural composite lumber is being substituted for dimension lumber or timbers, submit grading agency structural tables marked for comparison.
- C. Sheathing Panel Product Data: Submit product data for each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

## **1.05 DELIVERY, STORAGE, AND HANDLING**

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.
- B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.
- C. Lumber: Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.
- D. Sheathing Panels: Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

## **PART 2 PRODUCTS**

### **2.01 GENERAL REQUIREMENTS**

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
  - 1. Species: Douglas Fir-Larch, unless otherwise indicated.
  - 2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
  - 3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee ([www.alsc.org](http://www.alsc.org)) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
- B. Lumber fabricated from old growth timber is not permitted.

### **2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS**

- A. Grading Agency: Southern Pine Inspection Bureau, Inc. (SPIB).
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: S-dry or MC19.
- D. Stud Framing ( 2 by 2 through 2 by 6 ):
  - 1. Species: as specified on Structural Drawings.
  - 2. Grade: as specified on Structural Drawings.
- E. Joist, Rafter, and Small Beam Framing ( 2 by 6 through 4 by 16 ):
  - 1. Species: as specified on Structural Drawings.
  - 2. Grade: as specified on Structural Drawings.
- F. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
  - 1. Lumber: S4S, No. 2 or Standard Grade.
  - 2. Boards: Standard or No. 3.

## 2.03 STRUCTURAL COMPOSITE LUMBER

- A. Structural Composite Lumber: Factory fabricated beams, headers, and columns, of sizes and types indicated on drawings; structural capacity as published by manufacturer.
  - 1. Use laminated veneer lumber, laminated strand lumber, or parallel strand lumber with E (modulus of elasticity) and extreme fiber stresses: as specified on drawings, minimum.
  - 2. Laminated-Veneer Lumber: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D5456 and manufactured with an exterior-type adhesive complying with ASTM D2559.
  - 3. Manufacturers:
    - a. Weyerhaeuser: [www.weyerhaeuser.com](http://www.weyerhaeuser.com).
    - b. Boise Cascade: [www.bc.com](http://www.bc.com).
    - c. Georgia-Pacific Corp.: [www.gp.com](http://www.gp.com).
    - d. Substitutions: See Section 01 6000 - Product Requirements.
- B. Source Limitations: Obtain each type of structural composite lumber product from single source from a single manufacturer.

## 2.04 CONSTRUCTION PANELS

- A. General Wood Panel Products:
  - 1. Plywood: comply with DOC PS 1.
  - 2. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.
  - 3. Factory mark panels to indicate compliance with applicable standards.
- B. Floor Sheathing: APA PRP-108, Rated Sturd-I-Floor, unless otherwise noted on drawings.
  - 1. Exposure Class: Exterior.
  - 2. Thickness: as specified on Structural Drawings.
  - 3. Edges: Tongue and groove.
- C. Subfloor/Underlayment Combination: Oriented strand board wood structural panel; PS 2.
  - 1. Bond Classification: Exposure 1.
  - 2. Performance Category: 1-1/8 PERF CAT.
  - 3. Span Rating: 48.
  - 4. Edges: Tongue and groove.
- D. Roof Sheathing: APA PRP-108, Structural I Rated Sheathing, Exterior Exposure Class, unless otherwise noted on drawings, and as follows:
  - 1. Thickness: as specified on Structural Drawings.
- E. Wall Sheathing: APA PRP-108, Structural I Rated Sheathing, Exterior Exposure Class, unless otherwise noted on drawings, and as follows:
  - 1. Thickness: as specified on Structural Drawings.
- F. Fiberglass Reinforced Plastic (FRP) Panels (glass board):
  - 1. Product: P100 - Pebble Surface by Marlite FRP or approved equal.
  - 2. Color: As selected from manufacturer's full range.
  - 3. FRP Trim and Fasteners: Same color, finish, and manufacturer as FRP panel, provide all matching trim needed for installation of FRP panels.
- G. Other Applications:

1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
2. 3/4" Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
3. Other Locations: PS 1, C-D Plugged or better.

## 2.05 ACCESSORIES

- A. Fasteners and Anchors:
  1. Metal and Finish: Hot-dipped galvanized steel per ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
  2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.
- B. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell neoprene foam from continuous rolls, selected from manufacturer's standard widths to suit width of sill members indicated.
- C. Sill Flashing: As specified in Section 07 6200.
- D. Subfloor Glue: Waterproof, water base, air cure type, cartridge dispensed.
- E. Water-Resistive Barrier: As specified in Section 07 2500.
- F. Construction Panel Fasteners:
  1. Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacturer.
  2. Provide fasteners with hot-dip zinc coating complying with ASTM A153.
  3. Nails: ASTM F1667.
  4. Wood Screws: ASME B18.6.1
  5. Roof sheathing clips: Place between all trusses and rafters at non-tongue-and-groove roof sheathing locations.

## 2.06 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWWA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
  1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
  2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWWA standards.
- B. Fire Retardant Treatment:
  1. Exterior Type: AWWA U1, Category UCFB, Commodity Specification H, chemically treated and pressure impregnated; capable of providing a maximum flame spread rating of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes both before and after accelerated weathering test performed in accordance with ASTM D2898.
    - a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
    - b. Do not use treated wood in direct contact with the ground.
  2. Interior Type A: AWWA U1, Use Category UCFA, Commodity Specification H, low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum

flame spread rating of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes.

- a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
  - b. Treat rough carpentry items as indicated.
  - c. Do not use treated wood in applications exposed to weather or where the wood may become wet.
- C. Preservative Treatment:
1. Preservative Pressure Treatment of Lumber Above Grade: AWWA U1, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft retention.
    - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
  2. Preservative Pressure Treatment of Plywood Above Grade: AWWA U1, Use Category UC2 and UC3B, Commodity Specification F using waterborne preservative to 0.25 lb/cu ft retention.
    - a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
  3. Preservative Pressure Treatment of Lumber in Contact with Soil: AWWA U1, Use Category UC4A, Commodity Specification A using waterborne preservative to 0.4 lb/cu ft retention.
    - a. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches and seal.
- B. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.
- C. Coordinate installation of rough carpentry members specified in other sections.

### **3.02 INSTALLATION - GENERAL**

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

### **3.03 FRAMING INSTALLATION**

- A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- C. Install structural members full length without splices unless otherwise specifically detailed.

- D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.
- E. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
- F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

### **3.04 BLOCKING, NAILERS, AND SUPPORTS**

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

### **3.05 INSTALLATION OF CONSTRUCTION PANELS**

- A. General:
  1. Comply with applicable recommendations in APA Form No. E30 "Engineered Wood Construction Guide".
  2. Do not use materials with defects that impair quality of sheathing or pieces that are too small to sue with minimum number of joints or optimum joint arrangements. Arrange jointst so that pieces do not span between fewer than three support members.
  3. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
  4. Securely attach to substrate by fastening as indicated on the drawings.
  5. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.
  6. Coordinate wall and roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
  7. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
  8. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.
  9. Space panels 1/8 inch apart at edges and ends.
- B. Subflooring/Underlayment Combination: Glue and nail to framing; staples are not permitted.
- C. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
  1. Nail panels to framing unless otherwise noted on drawings; staples are not permitted.
- D. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples unless otherwise noted on drawings.
  1. Place water-resistive barrier horizontally over wall sheathing, weather lapping edges and ends.
- E. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.
  1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
  2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.

3. Install adjacent boards without gaps.
4. Size and Location: As indicated on drawings.

### **3.06 SITE APPLIED WOOD TREATMENT**

- A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
- B. Allow preservative to dry prior to erecting members.

### **3.07 TOLERANCES**

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Surface Flatness of Floor: 1/4 inch in 10 feet maximum, and 1/2 inch in 30 feet maximum.
- C. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/2 inch in 30 feet maximum.

### **3.08 CLEANING**

- A. Waste Disposal: Comply with the requirements of Section 01 7419.
  1. Comply with applicable regulations.
  2. Do not burn scrap on project site.
  3. Do not burn scraps that have been pressure treated.
  4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

### **3.09 PROTECTION**

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

## **END OF SECTION**