

SECTION 06 10 00 ROUGH CARPENTRY

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Wood Council (AWC): 2, National Design Specification for Wood Construction.
2. American Lumber Standards Committee's Board of Review (ALSC).
3. American National Standards Institute (ANSI): A190.1, Product Standard for Structural Glued Laminated Timber.
4. American Wood Preservers' Association (AWPA):
 - a. U1, User Specification for Treated Wood.
 - b. M4, Standard for the Care of Preservative-Treated Wood Products.
5. APA - The Engineered Wood Association (APA):
 - a. PRP-108, Performance Standards and Qualification Policy for Structural-Use Panels (Form E445).
 - b. Form B445, APA Quality Assurance Policies for Structural-Use Panels Qualified to PRP-108.
6. ASTM International (ASTM):
 - a. A153/A153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - b. A307, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength.
 - c. A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - d. D3737, Standard Practice for Establishing Allowable Properties for Structural Glued Laminated Timber (Glulam).
 - e. D7341, Standard Practice for Establishing Characteristic Values for Flexural Properties of Structural Glued Laminated Timber by Full-Scale Testing.
 - f. E84, Standard Test Method for Surface Burning Characteristics of Building Materials.
 - g. F1667, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
7. Forest Stewardship Council (FSC), Principles and Criteria for Forest Stewardship, Version 4-0 (STD 01 001).
8. International Code Council (ICC):
 - a. ESR-1539, Power-Driven Staples and Nails.
 - b. International Building Code (IBC).

9. National Fire Protection Association (NFPA): 255, Standard Method of Test of Surface Burning Characteristics of Building Materials.
10. UL: 723, Standard for Test for Surface Burning Characteristics of Building Materials.
11. U.S. Department of Commerce—Voluntary Product Standard (DOC):
 - a. PS 1, Structural Plywood.
 - b. PS 20, American Softwood Lumber Standard.
12. Western Wood Products Association (WWPA): G5, Western Lumber Grading Rules.

1.02 SUBMITTALS

A. Action Submittals:

1. Product Data:
 - a. Indicate component materials and dimensions, and include construction and application details for the following:
 - 1) Sheathing.
 - 2) Metal framing anchors.
 - 3) Construction panel thickness where not shown.
 - 4) APA product reports for structural composite lumber.
2. Forest Stewardship Council (FSC) Certification.

B. Informational Submittals:

1. ICC Evaluation Service Reports, including the following as a minimum:
 - a. Connections and Fasteners.
 - b. Wood Treatment.
 - c. Nails.
 - d. Wood Framing.
 - e. Structural Panels.
2. Wood treatment manufacturer's instructions for handling, storing, installation, and finishing of treated material.
3. Material Certificates: Showing species and grade selected for dimension lumber for each use.
 - a. Material certificates for dimensional lumber in compliance with allowable unit stresses. Show species and grade selected for each use as well as design values approved by the ALSC's Board of Review.
 - b. For each type of preservative-treated wood product, include certification by treatment plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
 - c. For waterborne-treated products include statement that moisture content of treated materials was reduced to levels indicated prior to shipment to Site.

4. Material test reports from testing laboratory showing and interpreting test results in accordance with test methods UL 723, NFPA 255, and ASTM E84, relative to fire-retardant treated wood products.
5. Sustainable Design: In accordance with Section 01 81 13, Sustainable Design Requirements for Non-LEED™ Projects, document sustainability performance for items listed below.
 - a. Product Data for Certified Wood:
 - 1) Complete list of wood products and costs.
 - 2) Chain-of-custody certificates indicating that products specified to be made from FSC-certified wood comply with forest stewardship certification requirements. Include documentation that manufacturer is certified for chain-of-custody by an FSC-accredited certification body.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Upon delivery to Site, immediately place materials in area protected from weather. Do not store seasoned materials in wet or damp areas.
- B. Protect sheet materials from breaking corners and damaging surfaces while unloading.
- C. Store materials a minimum of 6 inches above ground on framework or blocking and cover with waterproof covering, providing for adequate air circulation and ventilation. Store sheet materials flat, not on edge.
- D. Protect fire-retardant materials against high humidity and moisture during storage and erection.
- E. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.
- F. Store materials for which maximum moisture content is specified in areas where humidity can be controlled.

PART 2 PRODUCTS

2.01 GENERAL

- A. Physical Characteristics: Lumber sizes shown are nominal unless noted otherwise. Provide actual sizes as required by DOC PS 20 for use.
- B. Functional Characteristics:
 1. Lumber Standards:
 - a. In accordance with DOC PS 20 and applicable grading rules and wood species certified by ALSC.

- b. Design values for wood members equal to those published in supplement to AWC 2.
 - c. Stamp or brand each unexposed piece of lumber with grade, species, and moisture content at time of mill surfacing.
 - d. Furnish exposed lumber pieces with grade stamps applied to ends or back of each piece. If completely exposed, and permitted by local building jurisdiction, omit grade stamps entirely.
2. Glued Laminated Timber Standards:
- a. In accordance with ANSI A19.01.
 - b. Grading combination and corresponding design values in accordance with ASTM D3737 or ASTM D7341.

C. Performance Characteristics:

- 1. Sustainable Material Requirements:
 - a. Certified Wood: Provide products with a minimum certified wood content of 60 percent.
- 2. Moisture content of lumber not to exceed 19 percent, unless otherwise specified and marked "DRY".
- 3. Moisture content of glulam not to exceed 16 percent at time of bonding.
- 4. Each plywood panel identified with designated grade trademark of APA.

2.02 LUMBER

A. Physical Characteristics:

- 1. Framing Lumber Douglas Fir-Larch, No. 1 or better unless indicated otherwise below:

Usage	Minimum Grade
Plates, blocking, braces, and nailers	Douglas Fir-Larch No. 2
Structural joists, 2 inches to 4 inches thick by 5 inches and wider	Douglas Fir-Larch No. 1
Baffles	Douglas Fir-Larch No. 1

- 2. Glued Laminated Timber (glulam) Group 1 - Douglas Fir-Larch:

Usage	Minimum Grade
Plates, blocking, braces, and nailers	Group 1 - Douglas Fir-Larch

B. Functional Characteristics: None.

C. Performance Characteristics: None.

2.03 CONSTRUCTION PANELS

A. Plywood - General:

1. Physical Characteristics: Where construction panels are shown for the following concealed types of applications, provide APA Performance-Rated Panels complying with requirements designated under each application for grade designation, span rating, exposure durability classification, edge detail, and thickness.
2. Functional Characteristics: None.
3. Performance Characteristics:
 - a. Construction Panel Standards: Comply with DOC PS 1 for plywood construction panels and for products not manufactured under DOC PS 1 provisions, in accordance with APA PRP-108 and APA Form B445.
 - b. Trademark: Each construction panel factory-marked with APA trademark evidencing compliance with grade requirements.

B. Roof Sheathing:

1. Physical Characteristics:
 - a. Thickness: As shown.
 - b. Span Rating: 32/16.
2. Functional Characteristics: For use at structural roof decks.
3. Performance Characteristics:
 - a. Grade designation, APA rated.
 - b. Exposure Durability Classification: EXTERIOR.

C. Plywood Backing Panel:

1. Physical Characteristics:
 - a. Thickness shown, or if not shown, not less than 15/32 inch.
 - b. Fire-retardant treated plywood panel.
2. Functional Characteristics: For use at locations where mounting electrical, telephone, and like equipment.
3. Performance Characteristics: Grade designation, APA C-D Plugged Exposure 1.

2.04 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS

A. Physical Characteristics:

1. Aboveground Materials:
 - a. Pressure treat items with waterborne preservatives to a minimum retention of 0.25 per cubic foot.

- b. Interior Use: After treatment, kiln-dry lumber and plywood to maximum moisture content of 19 percent and 15 percent respectively.
 - c. Treat the following items:
 - 1) Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2) Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
 - 3) Wood framing members less than 18 inches above grade.
 - 2. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces to comply with AWP A M4. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.
- B. Functional Characteristics: None.
- C. Performance Characteristics: Where lumber or plywood is indicated as preservative-treated wood, in accordance with AWP A U1 and AWP A M4, mark and grade each treated item in accordance with WWP A G5.
 - 1. Kiln-dry after treatment to maximum moisture content of 19 percent.

2.05 FIRE-RETARDANT TREATED WOOD

- A. Physical Characteristics: Pressure treat lumber and plywood with fire-retardant chemicals in accordance with applicable AWP A U1 and AWP A M4 standard for species, product, preservative and end use to ensure flame-spread rating not higher than 25 with no evidence of significant progressive combustion when tested for 30 minutes duration under UL 723 and ASTM E84.
- B. Functional Characteristics: None.
- C. Performance Characteristics: Treated lumber and plywood labeled and tested by UL shall show performance rating.

2.06 HARDWARE

- A. Physical Characteristics:
 - 1. Nails, Bolts, and Screws: Hot-dipped zinc-coated wherever exposed.
- B. Functional Characteristics: None.

C. Performance Characteristics:

1. General: Fasteners and connectors in contact with preservative-treated or fire-retardant-treated wood shall be hot-dipped zinc-coated galvanized steel or stainless steel in accordance with ASTM A153/A153M.
 - a. Conform to ASTM F1667.
2. Nails: Conform to ASTM F1667.
3. Power Driven Fasteners: Conform to ICC ESR-1539.
4. Bolts and Screws: Conform to ASTM A307.
5. Ply Clips: Extruded 6063-T6 aluminum alloy.
6. Bar or Strap Anchors: ASTM A653/A653M, zinc-coated steel, 18 gauge minimum.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify surfaces to receive rough carpentry materials are prepared to exact grades and dimensions.

3.02 GENERAL

- A. Lay out, cut, fit, and install rough carpentry items. Anchor sufficiently to ensure rigidity and permanence.
- B. Install items accurate to dimension, true to line, level, and square unless shown otherwise. Provide for installation and support of other Work.
- C. Discard units of material with defects that impair quality of rough carpentry construction and that are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement.
- D. Countersink nailheads on exposed carpentry work and fill holes.
- E. 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.
- F. Field treat field cuts and holes in pressure-treated lumber with preservative in accordance with AWWA M4.
- G. Holes: 1/16 inch larger than nominal bolt diameter, except provide holes for cast-in-place anchor bolts 3/16 inch larger than nominal bolt diameter.
 1. Enlarge tight holes requiring forcible driving of bolts by reaming.
- H. Provide washers under bolt heads and nuts bearing on wood.

3.03 INSTALLATION

A. Plates:

1. Set level and flush with outside face of foundation or as shown.
2. Anchor as shown.

B. Stud Framing:

1. Plates:
 - a. Provide double top plates for load-bearing partitions, 2 inches thick by width of stud. Lap top plates at corners. Splice top plate two stud spaces from lower top plate.
 - b. Provide single top plate for nonload-bearing partitions, 2 inches thick by width of studs.
 - c. Face-nail upper top plate to lower top plate.
2. Blocking:
 - a. Install in continuous, staggered horizontal row where shown or required by code.
 - b. Locate blocking to facilitate installation of finishing materials, fixtures, specialty items, hardware, and trim.

C. Miscellaneous Framing:

1. Framing for Mechanical Work:
 - a. Frame members for passage of pipes and ducts to avoid cutting structural members.
 - b. Do not cut, notch, or bore framing members for passage of pipes or conduits without concurrence of Contracting Officer. Reinforce framing members where damaged by cutting.

D. Roof Sheathing:

1. Install plywood panels with face grain perpendicular to supports, using panel continuous over two or more spans, with end joints staggered between panels and locate over supports.
2. Allow minimum space of 1/16 inch between end joints and 1/8 inch at edge joints for expansion and contraction of panels.
3. Support edge joints by use of ply clips or lumber blocking, unless noted otherwise on the Drawings.
4. Unless noted otherwise on the Drawings, minimum nailing:
 - a. 6 inches on center along panel edges.
 - b. 12 inches on center at intermediate supports.
5. Unless noted otherwise on the Drawings, use 8d common nails for panels 3/4-inch thick and less, and 10d nails for greater thickness.
6. See rough carpentry section of General Structural Notes found on the Drawings for alternate fastener and spacing options.

3.04 PRESERVATIVE-TREATED WOOD PRODUCTS

- A. Provide preservative-treated wood for framing, blocking, furring, nailing strips built into exterior masonry walls, wood in contact with concrete or masonry and in conjunction with gravel stops, and built-up roofing.
- B. Apply two brush coats of same preservative used in original treatment to sawed or cut surfaces of treated lumber.

3.05 FIRE-RETARDANT TREATED WOOD

- A. Provide fire-retardant treated lumber and plywood for framing and sheathing and where indicated on the Drawings.
- B. Use FR-S rated wood on interior only.
- C. Use exterior rated wood outside and where relative humidity is above 80 percent.

3.06 FIELD QUALITY ASSURANCE

- A. Furnished Quality Assurance, in accordance with IBC Chapter 17 requirements, is provided in Statement of Special Inspections Plan as shown. Contractor responsibilities and related information are included in Section 01 45 33, Special Inspection, Observation, and Testing.
- B. Contractor-Furnished Quality Control: Inspect and test as required in Section 01 40 00, Quality Requirements.

END OF SECTION

