

**SECTION 06 10 00****ROUGH CARPENTRY****PART 1 - GENERAL****1.1 GENERAL**

Work of this Section shall conform to requirements of Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections.

**1.2 SCOPE**

The work covered by this Section shall include provisions for all lumber framing, rough hardware and blocking in accordance with the Drawings and as specified herein.

**1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS**

1. Section 03 10 00 - Concrete Forming and Accessories.
2. Section 06 17 00 - Shop-Fabricated Structural Wood.
3. Section 06 18 00 - Glued-Laminated Construction.
4. Section 06 17 33 - Wood I Joists.

**1.4 CODES AND STANDARDS**

- A. The following published specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to Work in this Section (latest editions apply).
1. California Code of Regulations. Title 24, 2016 edition, also known as California Building Code (CBC).
  2. (APA) - American Plywood Association, "Guide to Plywood Grades."
  3. (PS) - United States Product Standard, PS-1 and PS-2 "Construction and Industrial Plywood."
  4. (UL) - Underwriters' Laboratories, Inc., "Fire Hazard Classification, FR-S."
  5. (WCLIB) - West Coast Lumber Inspection Bureau, "Standard Grading Rules No. 17."
  6. (WWPA) - Western Wood Products Association, "Grading Rules for Lumber."
  7. (AWPA) - American Wood Preservers Association Standards.
    - a. T1 – "Processing and Treatment Standard"

b. U1 – “User Specification for Treated Wood”

8. (AF&PA) - American Forest and Paper Association, “National Design Specification for Wood Construction.” “Special Design Provisions for Wood & Seismic.”.
9. (ASTM) - American Society of Testing and Materials.

1.5 SUBMITTALS

- A. Shop Drawings of all specially fabricated rough hardware.
- B. Samples only as requested by the architect.

1.6 PRODELIVERY, STORAGE, AND HANDLING

- A. Provide proper facilities for handling and storage of materials to prevent damage to edges, ends, and surfaces.
- B. Keep materials dry. Where necessary, stack materials off ground on level flat forms, fully protected from weather.
- C. Environmental Requirements: Maintain uniform moisture content of lumber at not more than 19-percent during and after installation.
- D. New lumber adjacent and connected to existing lumber shall have a moisture content of not more than 15 percent at the time of installation.
- E. Sequencing, Scheduling: Coordinate details with other Work supporting, adjoining or fastening to rough carpentry Work.

1.7 QUALITY ASSURANCE BY OWNER’S TESTING AGENCY

- A. Inspect erected timber framing as required to establish conformity of work with Drawings.
- B. Inspect all timber connectors per CBC Section 1704.5.3.
- C. Inspect high-load diaphragm nailing and support framing per CBC Section 1704.5.1.
- D. Inspect elements of the seismic lateral force resisting system per CBC Section 1705.11.
  1. Inspect floor and roof diaphragm nailing for nail size, spacing and penetration at plywood panel edges, and special nailing at collector and drag members.
  2. Inspect shear wall nailing for nail size, spacing, edge distance and penetration at plywood panel edges, and nailing at holdown posts.
  3. Inspect all bolted connections of elements that are part of the seismic lateral force resisting system.

4. Inspect holdown bolts into wood and concrete.

## 1.8 QUALITY ASSURANCE BY CONTRACTOR

- A. Machine Nailing: Use of machine nailing is subject to a satisfactory jobsite demonstration for each project and the approval of the Project Inspector and the Structural Engineer. The approval is subject to continued satisfactory performance. If the nail heads penetrate the outer ply more than would be normal for a hand-held hammer, or if minimum allowable edge distances are not maintained, the performance will be deemed unsatisfactory and machine nailing shall be discontinued.

## PART 2 - PRODUCTS

### 2.1 MATERIAL

- A. Rough Carpentry:
  1. Sills on Concrete: Douglas Fir with Preservative Treatment.
  2. Lumber (Wood Framing): Material grade shall be as shown on the drawings.
  3. Plywood: Provide thickness, grade, and panel identification index shown on drawings. For plywood thickness 15/32 or greater provide a minimum of 5 ply.
- B. Rough Hardware: All exterior hardware shall be hot-dipped galvanized.
  1. Nails: Common wire per ASTM F1667, typical; hot-dipped zinc-coated galvanized, stainless steel, silicon bronze, or copper at exposed conditions, fire-retardant-treated, and preservative-treated lumber.
  2. Expansion Bolts: Reverse cone, self-wedging, expansion type, Tightening of nut or increased tension on bolt shank shall act to force wedges outward to create positive increased resistance to withdrawal, Simpson Strong-Bolt, Hilti Kwik-Bolt TZ, or equal product substituted per Section 01630.
  3. Metal Framing Connectors: Fabricate from hot-dipped galvanized steel (G90 coating). Connectors in contact with preservative-treated lumber shall have G185 hot dipped galvanized coating per ASTM A653. Connectors in contact with fire-treated lumber or are in high corrosive environments shall be manufactured with Type 316L stainless steel. Connectors shall be at least 16-gauge material, 1/8-inch plate materials where welded, unless otherwise shown or specified, punched for nailing. Nails and nailing shall conform to the manufacturer's instructions, including coating and material where applicable, with a nail provided for each punched nail hole. Use maximum nail size listed by manufacturer. Manufactured by Simpson Company or equal product substituted per Section 01630.

4. Miscellaneous Hardware: Provide all common screws, bolts, fastenings, washers and nuts required to complete rough carpentry Work.
5. Bolts and sill bolts in wood shall be ASTM A307 with standard cut threads; full diameter bolts (no rolled or "upset" threads permitted) per ANSI/ASME standard B18.2.1.
6. Fasteners used for attachment of exterior wall coverings shall be hot-dipped zinc-coated galvanized steel, mechanically deposited zinc-coated steel, stainless steel, silicon bronze, or copper. The coating weights for hot-dipped zinc-coated fasteners shall be in accordance with ASTM A153. The coating weights for mechanically deposited zinc-coated fasteners shall be in accordance with ASTM B695, Class 55 minimum.

## 2.2 TREATMENTS

- A. Fire-Retardant Treatment: Furnish in accordance with AWWA Standards T1, U1, and P17, "Fire Retardant Formulations."
- B. Preservative Treatment: Furnish in accordance with AWWA Standards T1 and U1. Preservatives with an ammonia base, including Ammoniacal Copper Zinc Arsenate (ACZA) are not permitted.

## 2.3 FABRICATION

- A. Preparation:
  1. Verify measurements at job site.
  2. Verify details and dimensions of equipment and fixtures integral with finish carpentry for proper fit and accurate alignment.
  3. Coordinate details with other work supporting, adjoining, or fastening to casework.
- B. Lumber:
  1. Air- or kiln-dry to maximum 19-percent moisture content at time of surfacing.
  2. Furnish surfaced four sides, S4S, unless otherwise noted.
  3. Size to conform with rules of governing standard. Sizes shown are nominal unless otherwise noted.
- C. Wood Treatments:
  1. Fire-Retardant Treatment:
    - a. Treat in accordance with AWWA Standards T1 and U1 and approved manufacturer's recommendations. Verify AWWA Use

Category with proposed application prior to selected preservative.  
Fire treated lumber shall conform to the requirements of CBC  
Section 2303.2.

2. Preservative Treatment:
  - a. Treat lumber and plywood sheathing that is:
    - i. In contact with concrete and masonry less than six feet above the ground.
    - ii. Exposed to weather permanently.
    - iii. Where specified in the Contract Documents.
  - b. Treat in accordance with AWPAs Standards T1 and U1. Verify AWPAs Use Category with proposed application prior to selecting preservative.
  - c. Treated lumber shall be marked per CBC Section 2303.1.8.1.
  - d. After Treatment and prior to shipping, air- or kiln-dry lumber to maximum 19-percent moisture content.

## 2.4 SOURCE QUALITY CONTROL

- A. Lumber shall bear grade-trademark or be accompanied by certificate of compliance of appropriate grading agency.
- B. Plywood shall bear APAs grade-trademark.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Examine areas to receive rough carpentry Work and verify following:
  1. Completion of installation of building components to receive rough carpentry Work.
  2. That surfaces are satisfactory to receive Work.
  3. That spacing, direction, and details of supports are correct to accommodate installation of blocking, backing, stripping, furring and nailers.
  4. That all anchor bolts and holdown bolts are properly installed.
- B. Cleaning and adjusting exposed timber.
  1. Remove damaged or otherwise disfigured portions and replace with new prior to the Owners acceptance.

2. Wash finished Work in strict accordance with product manufacturer's directions and ensure that washed surfaces do not differ from clean unwashed surfaces. Any difference will be considered unsatisfactory work.

### 3.2 ERECTION

- A. Cutting: Perform all cutting, boring, and similar Work required.
- B. Studs, Joists, Beams, and Posts: Install all members true to line. No wood shingle shims are permitted. Place joists with crown up; maximum 1/4-inch crown permitted.
- C. Nail joints in accordance with applicable requirements of the CBC Table 2304.9.1 unless otherwise shown or specified. Predrill where nails tend to split wood. Nails into preservative-treated lumber shall be hot-dipped galvanized.
- D. Bolt holes to be 1/16-inch oversize. Threads shall not bear on wood. Use standard malleable iron washers against wood. Carriage bolts require washers under the nut only.
- E. Provide blocking, grounds, nailers, stripping, and backing as shown and as required to secure other Work.
- F. Adjoining sheathing panel edges shall bear and be attached to the framing members. Nails shall be placed not less than 3/8-inch from the panel edge.
- G. Plywood flooring shall be field glued with adhesive meeting APA specification AFG-01 applied in accordance with the manufacturer's recommendations. Apply continuous line of glue on joists and in groove of tongue and groove panels.
- H. Protect preservative-treated and fire-treated lumber per APWA Standard M4, "Standard for the Care of Preservative-Treated Wood Products."
- I. Where wood is cut, sawed, planed, bored or marred after preservative or fire-retardant treatment, apply two heavy brush coats of same material used in treatment.
- J. Nail heads shall be driven flush with plywood surface. Overdriven nails (nails which fracture the outer ply layer) shall be replaced one for one.
- K. Screws (Wood or Lag): Screws shall be screwed and not driven into place. Screw holes for the unthreaded portion shall be predrilled to the same diameter and depth of shank. Holes for threaded portion shall be predrilled less than or equal to the diameter of the root of the thread. Provide standard cut washers under head of lag screws.
- L. Sheathing used for diaphragms and shear walls that are part of the seismic-force-resisting system shall be applied directly to framing members. Sheathing is permitted to be fastened over solid limber planking or laminated decking, provided the sheathing panel joints do not align with the planking or decking joints.

END OF SECTION