# SECTION 06 10 00

# ROUGH CARPENTRY

## PART 1 GENERAL

### 1.01 RELATED DOCUMENTS

A. The drawings and general conditions of the contract including General and Supplementary Conditions and other Division 1 Specification sections apply to work of this section.

B. Examine all other sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

### 1.02 DESCRIPTION OF WORK

A. Work Included: Provide labor, materials, and equipment necessary to complete the work of this Section, and without limiting the generality thereof furnish and install the following:

1. Wood framing, including joists, rafters, outriggers, scab-ons, headers, posts, plates, and similar members.

2. Wood grounds, nailers, and blocking.

3. Roof sheathing and wood decking.

4. Miscellaneous carpentry as indicated or required and not specified under other Sections of the Specifications.

5. Fasteners and accessories as indicated and required for rough carpentry.

6. Treated wood as specified.

B. Related Work Specified Elsewhere:

1. Clay Masonry Restoration and Cleaning: Section 040120.

2. Underlayments, roofing, waterproofing: Division 7.

### 1.03 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of the latest edition of the following except where more stringent requirements are shown or specified:

1. International Building Code, 2006 Edition – International Code Council

2. ANSI/AF&PA (American Forest & Paper Association) – NDS National Design Specification for Wood Construction – Latest Edition

3. ALSC (American Lumber Standards Committee) – Softwood Lumber Standards.

4. APA (American Plywood Association).

5. AWPA (American Wood Preservers Association) C1-All Timber Products – Preservative Treatment by Pressure Process.

6. NELMA (New England Lumber Manufacturer's Association).

7. NLGA (National Lumber Grades Authority)

8. NIST (National Institute of Standards and Technology, U. S. Department of Commerce [DOC])

9. NFPA (National Forest Products Association)

10. SPIB (Southern Pine Inspection Bureau).

11. WCLIB (West Coast Lumber Inspection Bureau).

12. WWPA (Western Wood Products Association).

13. ANSI/AITC A190.1 - Standard for Dimensions of Structural Glued Laminated timber.

14. ASTM D 2559 - Standard Specification for Adhesives for Structural Laminated Wood Products for Use Under Exterior (Wet Use) Exposure Conditions.

15. "Code of Federal Regulations, Part 1926" per the Occupational Safety and Health Administration (OSHA), Department of Labor (Latest Revision).

B. Lumber shall be supplied in accordance with the following agencies:

1. Lumber Grading Agency: Certified by NLGA for structural framing.

2. Sheathing Grading Agency: Certified by APA or ICBO approved certification agency. For non-APA rated plywood, provide ICC ES Evaluation report.

3. Grading stamp shall be on lumber and plywood.

4. Submit manufacturer's certificate certifying that products meet or exceed specified requirements.

**1.04 SUBMITTALS**

A. Unless otherwise specified, submittals required in this section shall be submitted for review. Submittals shall be prepared and submitted in accordance with Division 1.

B. General Contractor shall submit a Submittal Schedule to the engineer within 30 days after they have received the Owner's Notice to Proceed.

C. All submittals shall be reviewed and returned to the Architect within 10 working days.

D. Incomplete submittals will not be reviewed.

E. Submittals not reviewed by the General Contractor prior to submission to the Engineer will not be reviewed. Include on the submittal statement or stamp of approval by Contractor, representing that the Contractor has seen and examined the submittal and that all requirements listed in sections Division 1have been complied with.

F. Engineer will review submittals a maximum of two review cycles as part of their normal services. If submittals are incomplete or otherwise unacceptable and re-submitted, General Contractor shall compensate Engineer for additional review cycles.

G. Hardcopy Submittals: Submit three prints. Prints will be reviewed by the Engineer, and then the Architect. One marked print will be returned to Contractor for printing and distribution. Multiple copies will not be marked by the Engineer.

H. Electronic Submittals:

1. Contractor shall include in the submittal schedule an indication of submittals that are intended to be submitted electronically. Upon receipt of the submittal schedule, the Engineer reserves the right to indicate submittals that will not be accepted electronically. Paper copies of such submittals shall be furnished as referenced in this specification.

2. The submission of submittals electronically does not relieve the contractor of their responsibility to review the submittal prior to transmission to the Engineer. Electronic Submittals shall include contractor comments, and a statement and/or stamp of approval by Contractor, representing that the Contractor has seen and examined the submittal and that all requirements listed in this Section and Division 1 have been complied with. Electronic submittals without the Contractor's approval will be rejected and returned.

3. The Engineer assumes no responsibility for the printed reproduction of submittals reviewed electronically, transmission errors or returned electronic submittals that become corrupted or are otherwise not accessible by the Contractor's or Subcontractor's computer hardware and/or software.

I. Product Data: Submit producer's or manufacturer's specifications and installation instructions for the following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards). Product data shall include ICC/ICBO Evaluation Reports indicating conformance to standards specified here within.

1. Engineered Wood Products

2. Pressure Treated Lumber

3. Wood Decking including installation methods and product certification to meet design loads

4. Sheathing

5. Samples of Exposed to View Wood Members: Submit two samples, 6 inches long, illustrating wood grain, stain, and finish.

6. Hangers, Hardware and Accessories

J. Wood Decking Samples: Two complete sets of finish samples of the specified species and with the specified pattern, size, texture, and finish.

K. LEED Documentation: Refer to paragraph 1.06 of this section and Section 01352.

### 1.05 LEED Requirements

A. Regional materials, regional manufacture: Use dimensioned lumber manufactured within 500 mile radius of project.

B. Regional materials, regional extraction: Use dimensioned lumber extracted, harvested or recovered within 500 mile radius of project.

C. Certified Wood: Provide lumber certified in accordance with the Forest Stewardship Council's (FSC) Principals and Criteria, for components including, but not limited to structural framing and general dimension framing, non-rented temporary construction applications such as bracing, concrete form work and pedestrian barriers.

D. Waste Management:

1. Schedule ordering of lumber and materials to minimize field cuts. Submit schedule as part of LEED documentation.

2. Collect offcuts and scrap and place in designated areas for salvage use.

3. Utilized offcut as blocking or for short length members.

### 1.06 DELIVERY, STORAGE, AND PROTECTION

A. Protect materials from warping or other distortion by stacking to resist movement.

B. Follow manufacturer's recommendations for storage of wood decking and connection hardware.

C. Follow manufacturer's recommendations for storage of Engineered Wood Products and connection hardware.

## PART 2 PRODUCTS

### 2.01 LUMBER MATERIALS

A. Lumber, General: Factory-mark each piece of lumber with type, grade, mill and grading agency, except omit marking from surfaces to be exposed with transparent finish or without finish.

B. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.

1. Provide dressed lumber, S4S, unless otherwise indicated.

2. Provide seasoned lumber with 19% maximum moisture content at time of dressing.

C. For structural framing (4" and wider and from 2" to 4" thick), provide the following grade and species:

1. Spruce-Pine-Fir (SPF) #1/2 or better, NLGA Graded, unless noted otherwise on Structural Drawings, Minimum Design Stresses:

a. Fb: 875 psi

b. Ft: 450 psi

c. Fv: 135 psi

d. $F_{c\perp}$: 425 psi

e. Fc: 1,150 psi

f. E: 1,400,000 psi

2. Pressure treated lumber: Southern Yellow Pine #2 or better. Minimum Design Stresses:

a. Fb: 1,300 psi

b. Ft: 775 psi

c. Fv: 175 psi

d. $F_{c\perp}$: 565 psi

e. Fc: 1,650 psi

f. E: 1,400,000 psi

3. See structural drawings for grades and bending stress at specific locations.

D. Wood Decking:

1. Provide decking designed for wind pressures per ASCE 7-05.

2. Species: Douglas Fir/Larch / Southern Pine. Grade: Service. Pattern: Standard Vee. Tongue-And Groove Edges: Center laminations shall be offset and machined to form a tongue and groove on both the edges. Ends: End matched (tongue-and-groove). Random Length Continuous Spans: 6' to 16', shipped in multiples of 1 foot and 1 inch short of nominal. Nominal Size: 3x6. Surface Texture: Coarse Sanded (16 grit). Moisture Content: 10% to 12% average, maximum 15%. Factory Finish - Stain: One coat of factory-applied, oven-dried acrylic, semi-transparent stain with mildewcide/fungicide – color to be coordinated with owner / architect.

3. Acceptable Manufacturer: Disdero Lumber Co., which is located at: P. O. Box 469 ; Clackamas, OR 97015; Toll Free Tel: 800-547-4209; Tel: 503-239-8888; Email: request info (gbrinck@disdero.com); Web: www.lockdeck.com . Substitution requires pre-approval.

E. Miscellaneous Lumber: Provide wood for support or attachment of other work including

cant strips, bucks, nails, blocking, furring, grounds, stripping and similar members. Provide lumber of sizes indicated, worked into shapes shown, and as follows:

1. Moisture content: 19% maximum for lumber items not specified to receive wood preservative treatment.

2. Grade: Construction Grade light framing size lumber of any species or board size lumber as required. Provide construction grade boards (NELMA, NLGA or WCLB) or No.2 boards (SPIB, NLGA, NELMA, or WWPA).

## 2.02 SHEATHING LOCATIONS

A. Roof Sheathing: NIST/DOC PS-1 or PS-2 rated, Exposure 1, 5/8 inch thick, 48 x 96 inch sized sheets, square edges, unless noted. Provide H-clips per the manufacturer's recommendations.

B. Thicknesses indicated are nominal.

C. Sheathing shall be stamped with grading agency stamp

## 2.03 ENGINEERED WOOD PRODUCTS

A. General: Provide engineered wood products acceptable to authorities having jurisdiction and for which, current model code research or evaluation reports exist that evidence compliance with building code in effect for Project. Provide depths and widths as indicated.

1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis, and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2. Source and Species: Unless otherwise indicated, lumber sources in Engineered Wood Products shall be of single source and species.

3. Adhesives shall be exterior type, complying with ASTM D2559.

4. Substitutions: Substitutions of Engineered Wood Products other than those specified will be permitted only with written certification from the manufacturer that the substituted items "meets or exceeds" all properties of the specified product, including engineering, serviceability, aesthetic and durability characteristics. Substitutions shall not be made without written approval of the Architect and Engineer.

B. Laminated-Veneer Lumber (LVL): Lumber manufactured by laminating wood veneers in a continuous press using an exterior-type adhesive complying with ASTM D *2559* to produce members with grain of veneers parallel to their lengths and complying with the following requirements:

Boise Cascade $F_b$ = 3080 psi, E = $2.0 \times 10^6$
I-Level: $F_b$ = 2600 psi, E = $1.9 \times 10^6$

## 2.04 ACCESSORIES

A. Fasteners, Anchors, Connectors and Hardware:

1. Fasteners (for wood framing): Nail fasteners shall meet requirements of ASTM F1667. Unless noted otherwise, nails referenced on drawings are to be Common Nails with dimensions as follows:

    a. 6d: 2” long by 0.113” diameter shank with 0.266” diameter head

    b. 8d: 2 1/2" long by 0.131” diameter shank with 0.281” diameter head

    c. 10d: 3” long by 0.148” diameter shank with 0.312” diameter head

    d. 12d: 3 1/4" long by 0.148” diameter shank with 0.312” diameter head

    e. 16d: 3 1/2" long by 0.162” diameter shank with 0.344” diameter head

    f. 20d: 4” long by 0.192” diameter shank with 0.406” diameter head

    g. 30d: 4 1/2" long by 0.207” diameter shank with 0.438” diameter head

2. Anchor Bolts: ASTM A307 headed and SSTB Anchor Bolts by Simpson StrongTie, unless noted otherwise. “J” or “L” type anchor bolts shall not be substituted.

3. Screw fasteners (where indicated on drawings or required to install connection hardware):

    a. SD & SDS Screws by Simpson Strong Tie

    b. RSS Screws by GRK Fasteners, (800) 263-0463

    c. Timberlok Screws by Fasten Master.

    d. Wood Screws: ANSI/ASME Standard B18.6.1

4. Lag Screws: ANSI/ASME Standard B18.2.1. Provide lead hole per NDS Chapter 11.

5. Through Bolts: ANSI/ASME Standard B18.2.1:

    a. Holes for through bolts shall be a minimum of 1/32nd and a maximum of 1/16th larger than bolt diameter.

    b. A standard cut washer shall be provided between the wood and bolt head, and wood and nut, unless noted otherwise.

B. Structural Framing Connectors, Hardware or Joist Hangers: As indicated on the drawings or sized to suit framing conditions, manufactured by Simpson or approved alternate.

1. Unless noted, fill all nail holes to achieve manufacturer’s maximum reaction rating.

2. Use nail diameter and length as specified by connector manufacturer. Substitutions of pneumatic nails or “joist hanger” (non standard length) nails shall not be made without written authorization of the Engineer.

C. Construction Adhesive: APA AFG-01, approved for use with type of construction panel indicated by both adhesive and panel manufacturer.

D. ALL ANCHORS, CONNECTORS AND FASTENERS IN CONTACT WITH PRESSURE TREATED LUMBER, AND/OR AT EXTERIOR EXPOSURE SHALL HAVE COATINGS AS FOLLOWS, UNLESS NOTED OTHERWISE:

1. Anchor Bolts/Bolts/Lag Bolts: Hot Dipped Galvanized, ASTM A123

2. Connection Hardware, unless otherwise noted: Simpson Strongtie Z-Max (G185 per ASTM A653) or Hot Dipped Galvanized (HDG, ASTM A123). Use hot dipped galvanized fasteners, ASTM A153 with these hangers.

3. Nails and Fasteners, unless otherwise noted: Hot Dipped Galvanized, ASTM A153. Use type 304 or 316 stainless steel fasteners with stainless hardware

4. Proprietary coatings used in conjunction with pressure treated fastener coatings will be permitted with written permission from the Architect and Engineer.

**2.05 FACTORY WOOD TREATMENT**

A. PRESSURE TREATED LUMBER (P. T.)

1. Wood Preservative (Pressure Treatment): AWPA Treatment, ACQ-C (amine formulated), ACQ-D or CA-B, ammonia free.

2. The use of ACZA and CCA treated lumber is strictly prohibited.

3. Retention:

a. Above Ground Use: ACQ: 0.25 pcf, CA-B: 0.10 pcf

b. Ground Contact Use: ACQ: 0.40 pcf, CA-B: 0.21 pcf.

4. See Section the “Fasteners, Anchors, Connectors and Hardware” portion of this specification for fastener, anchor and hardware requirements for use with pressure treated lumber.

5. Pressure treated lumber shall not contain ammonia unless authorized by the Architect and Engineer. Ammonia content shall be verified with the Pressure Treatment manufacturer.

**PART 3 EXECUTION**

**3.01 FRAMING**

A. Set members level and plumb, in correct position.

B. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in true alignment until completion of erection and installation of permanent bracing.

C. Place horizontal members, crown side up.

D. Construct load bearing framing members full length without splices.

E. Coordinate installation of wood decking, joist members, rafter members.

F. Curb roof openings except where prefabricated curbs are provided. Form corners by alternating lapping side members.

G. Coordinate curb installation with installation of decking and support of deck openings, and roofing vapor retardant.

H. Rough Carpentry Fastening Schedule: Unless otherwise indicated on the drawings, provide minimum nailing and fastening per IBC Table 2304.9.1.

**3.02 SHEATHING**

A. Install wood decking per manufacturer's instructions.

B. Secure roof sheathing with longer edge perpendicular to framing members and with ends staggered and sheet ends over bearing provide gap between panels as recommended by manufacturer. Utilize H-clips at panel edges per manufacturer's recommendations or as indicated. Provide blocking where indicated on the Drawings.

**3.03 TOLERANCES**

A. Framing Members: 1/4 inch from true position, maximum.

B. Fasteners Driving Tolerance: Unless noted otherwise, fastener heads shall be driven flush with attached framing member or sheathing. Maximum indentation tolerance from flush shall be 1/16 inch.

**END OF SECTION**