

SECTION 06100

ROUGH CARPENTRY

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Furnish materials and labor for installation of rough carpentry, including but not limited to:
 - 1. Roof crickets, curbs, blocking and plates.
 - 2. Pressure-treated wood plates.
 - 3. Miscellaneous wall-mounted plywood backer boards for electrical and related equipment.
- B. Furnish and install pressure-treated wood materials.
- C. Furnish nails, screws, bolts, fasteners, construction adhesives, and other related or accessory materials required for a complete installation.
- D. Installation of insulative wall sheathing materials.
- E. Coordination of all other trades as required for a complete installation.
- F. Related work specified elsewhere:
 - 1. Section 03100, Concrete Formwork.
 - 2. Section 04100, Mortar and Masonry Grout.
 - 3. Section 05120, Structural Steel.
 - 4. Section 06200, Finish Carpentry.
 - 5. Section 07221, Tapered Rigid Insulation.
 - 6. Section 07621, Galvanized Metal Flashing and Trim.
 - 7. Division 15, Mechanical.
 - 8. Division 16, Electrical.

1.02 QUALITY ASSURANCE

- A. Reference Standards: Conform to requirements of the following standards and codes:
 - 1. PS 1: Construction and Industrial Plywood.
 - 2. PS 20: American Softwood Lumber Standard.
 - 3. NFPA National Forest Products Association National Design Specification for Wood Construction.
 - 4. APA: American Plywood Association, Plywood Specification and Grade Guide.
 - 5. AWPA: American Wood-Preservers' Association.
 - a. AWPA C1: All timber products - preservative treatment by pressure processes.
 - b. AWPA C2: Lumber, timber, bridge ties and mine ties - preservative treatment by pressure processes.
 - c. AWPA C4: Poles - preservative treatment by pressure processes.
 - d. AWPA C9: Plywood - preservative treatment by pressure processes.
 - e. AWPA C14: Wood for highway construction - preservative treatment by pressure processes.
 - f. AWPA C15: Wood for commercial-residential construction - preservative treatment by pressure processes.
 - g. AWPA C16: Wood used on farms - preservative treatment by pressure processes.
 - h. AWPA C17: Playground equipment treated with inorganic preservatives - preservative treatment by pressure processes.
 - i. AWPA C22: Lumber and plywood for permanent wood foundations - preservative treatment by pressure processes.
 - 6. WWPA: Western Wood Products Association.
 - 7. California Redwood Association.

8. Applicable provisions of the codes referenced or as adopted by any jurisdiction with authority over this Project.
- B. Rough Carpentry Lumber: Materials shall carry the visible grade stamp of agency certified by National Forest Products Association (NFPA).
- C. Plywood panels shall be identified with APA grade trademark of the American Plywood Association.
- D. Grading of lumber shall be in accordance with the current edition of the Western Wood Products Association.
- E. Pressure-Treated Lumber: Pressure-treated lumber materials shall not contain chromated copper arsenate (CCA).

1.03 SUBMITTALS

- A. Shop Drawings and Product Data: Submit shop drawings and/or manufacturer's written product literature for prefabricated interior wood stair systems, indicating materials, fabrication, attachments and dimensions for each site condition required.
- B. Preservative Treatment Certification: Treating plant's certification of compliance with specified standards, process employed and preservative retention values.
- C. Product Data: Submit manufacturer's written product literature for all construction adhesives.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Protect lumber and plywood and keep under cover in transit and at jobsite.
- B. Do not deliver material unduly long before it is required to be installed in the work.
- C. Store on level racks and keep free of the ground to avoid warping. Stack to ensure proper ventilation and drainage.
- D. Pressure-Treated Wood Materials: Protect wood products against moisture and dimensional changes, in accordance with instructions from treating plant.
- E. Deliver packaged materials in manufacturer's original unbroken boxes, cartons or containers, with labels intact. Store in accordance with manufacturer's instructions and recommendations.

1.05 COMPLIANCE

- A. Do not permit materials not complying with the provisions of this Section to be brought onto or to be stored at the jobsite.
- B. Promptly remove non-complying materials from the jobsite and replace with materials meeting the requirements of this Section.

1.06 WARRANTIES

- A. Provide manufacturer's written lifetime warranty for pressure-treated wood products covering defects in materials and workmanship.
- B. Provide manufacturer's written 1-year warranty for epoxy-type wood repair materials covering defects in materials and workmanship.
 1. Installation Warranty: Installing contractor shall provide a 2-year written warranty covering installation.

PART 2 PRODUCTS

2.01 ROUGH CARPENTRY MATERIALS

- A. Framing Lumber: PS 20, grade in accordance with established WPA grading rules, maximum moisture content of 12% to 19% (S-Dry) S4S, of the following species and grades:
 1. Blocking and Miscellaneous Furring and Stripping: Pressure-treated Hem-Fir, where in

contact with concrete or masonry. Pressure-treated lumber shall not contain CCA.

2.02 PRESSURE-TREATED ROUGH CARPENTRY MATERIALS

- A. Semi-Concealed Structural Members: PS 20, grade in accordance with established WPA grading rules, maximum moisture content of 12% to 19% (S-Dry) S4S, with preservative treatment specified below, of the following species and grades:
 - 1. Plates: Redwood or pressure-treated Hem-Fir, where in contact with concrete.
- B. Approved Manufacturers:
 - 1. ACQ Preserve by Chemical Specialties, Inc., Charlotte, NC, and distributed locally by ECO Products, Boulder, CO, (303) 449-1876, as basis of design.
 - 2. Manufacturers providing materials of same function, performance and quality, and meeting the requirements of paragraph 2.05 below, are acceptable.

2.03 FASTENERS, ACCESSORY MATERIALS AND COMPONENTS

- A. Nails: Size and type to suit application.
 - 1. Framing: 8d to 12d rosin-coated box.
- B. Bolts, Nuts, Washers, Lags, Pins and Screws: Size and type to suit application or as indicated on the Drawings.
 - 1. Medium Carbon Steel: Galvanized for exterior locations, high-humidity locations and treated wood; plain finish for other interior locations or when in contact with concrete.
- C. Plate Sealer: Preformed type.
 - 1. Sill Seal or equal.

2.04 CONSTRUCTION ADHESIVES

- A. Construction Adhesives: Low-viscosity, mastic-type, multipurpose adhesive, formulated for field-gluing for interior or exterior use, meeting the following specifications:
 - 1. Reference Standards: Comply with the following minimum standards:
 - a. APA Spec. AFG-01.
 - b. ASTM D3498 and C557.
 - c. HUD/FHA requirements in Bulletin #60.
 - 2. Type: Synthetic elastomeric polymer, VOC compliant.
 - a. Calculated VOC: 47 g/L maximum.
 - 3. Base: Synthetic elastomer.
 - 4. Consistency: Approx. 130,000 cps, Brookfield viscometer.
 - 5. Weight/Gallon: 10.4 lbs. minimum.
 - 6. Solids content: 78%.
 - 7. Strength: ASTM D3498.
 - 8. Aging: Retains flexibility after 500 hrs. at 300 psi and 158° F by ASTM D572-61.
 - 9. Water Resistance: Waterproof.
 - 10. Application Method: Caulking gun or trowel.
 - 11. Application Temperature: 0°-100° F.
 - 12. Service Range: -20° to -120° F.
 - 13. Material Suitability: Select appropriate adhesive product(s) for materials/products to be field bonded, including but not limited to:
 - a. Medium- and heavy-duty construction adhesives.
 - b. Drywall adhesive.
 - c. Subfloor adhesive.
 - d. Polyurethane adhesive.
 - e. Repair construction adhesive.
 - f. Resilient base adhesive.
 - g. FRP adhesive.

- h. Multipurpose flooring adhesive.
 - i. Ceramic tile adhesive.
 - j. Ceiling tile adhesive.
- B. Approved Product and Manufacturer:
1. Titebond VOC-Compliant Adhesives, manufactured by Franklin International, Columbus, OH, (888) 533-9043, as basis of design.
 2. Manufacturers providing materials of same type, design, quality, performance and VOC compliance are acceptable.

2.05 WOOD TREATMENTS

- A. Preservative Treatment: Where lumber or plywood is indicated on the Drawings or specified herein to be pressure-treated, comply with applicable requirements of AWPA standards C2, C9, C14, C15, C16, C17 or ICBO ER4981, as applicable. Pressure-treat items with waterborne preservatives complying with WPA LP-2, except that in no case shall chromated copper arsenate (CCA) be used. After treatment, kiln dry to a maximum moisture content of 19% for lumber and 18% for plywood. Mark each treated item with the WPA quality mark requirements.
1. Application Rates: Apply specified preservative treatment as follows, or as recommended by approved manufacturers:
 - a. Preservative treatment for above ground use: 0.25 lb./cu.ft. minimum.
 - b. Preservative treatment where in contact with ground: 0.40 lb./cu.ft. minimum.
 - c. Preservative treatment for wood foundation systems: 0.60 lb./cu.ft. minimum.
 2. Treated wood products shall be used in the following locations, unless otherwise shown on the Drawings:
 - a. In contact with roofing, flashing or waterproofing.
 - b. In contact with masonry or concrete.
 - c. In contact, or within 6" of grade.
 - d. Exposed to weather.
 - e. Other locations indicated.

PART 3 EXECUTION

3.01 INSPECTION AND PREPARATION

- A. General: For new construction, the Contractor shall inspect the concrete or masonry walls and foundation structures and/or concrete flatwork that will support the rough carpentry structures associated with the work of this project, and notify the Architect/Engineer of any condition that may affect the structural integrity, quality or appearance of the completed project. Do not commence work until such defects have been corrected to the satisfaction of the Contractor.
- B. Selection of Lumber Pieces:
1. Carefully select the members. Select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing and will allow for proper connections.
 2. Cut out and discard defects which render a piece unable to serve its intended function.
 3. Lumber may be rejected by the Architect/Engineer, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus or mold, as well as for improper cutting and fitting, provided such defects exceed the criteria allowed by referenced standards for the lumber grade specified. The Contractor shall replace rejected material at no additional cost to the Owner.
 4. Do not shim any framing component.

3.02 INSTALLATION OF ROUGH CARPENTRY

- A. General:
 - 1. Erect wood furring, stripping and nailing members true to lines and levels; do not deviate from true alignment more than 1/4" in 10'-0".
 - 2. Space members as indicated on the Drawings or scheduled herein.
 - 3. Construct members of continuous pieces of longest possible lengths.
 - 4. Construct and erect required built-up beams and headers.
 - 5. Produce joints which are tight, true and well nailed, with members assembled in accordance with the Drawings and with applicable codes and regulations.
 - 6. Set horizontal and sloped members with the crown up. Crowns to be set in the same direction for vertical or horizontal application.
 - 7. Make bearings full and uniform for solid support.
 - 8. On framing members to receive a finished surface, align the finish subsurface to vary not more than 1/8" from the plane of surfaces of adjacent furring and framing members.
 - 9. Where scheduled, leave wood surfaces prepared for finishing specified in Section 09900, Painting, and Section 09930, Transparent Finishes.
 - 10. Coordinate rough openings for non-cased and trimmed doors and windows where gypsum board returns are detailed at jambs and headers. Framed opening shall be square and plumb to within 1/16" vertically from floor to header at trimmer and 1/16" horizontally between trimmers at header.
- B. Fastening:
 - 1. Nailing shall be in accordance with the requirements of applicable sections of the building code, current edition, unless indicated otherwise.
 - a. Nail without splitting wood.
 - b. Prebore as required.
 - c. Remove split members and replace with members complying with the specified requirements.
 - 2. Bolting:
 - a. Drill holes 1/16" larger in diameter than the bolts being used.
 - b. Drill straight and true from one side only.
 - c. Do not bear bolt heads on wood, but use washers under head and nut where both bear on wood, and use washers under all nuts.
 - 3. Screws: For lag screws and wood screws, prebore holes same diameter as root of threads, enlarging holes to shank diameter for length of shank.

3.03 INSTALLATION OF BLOCKING

- A. Firestops, Bracing and Blocking: As shown on the Drawings or required for applicable Building Code compliance.
 - 1. Provide blocking and/or bracing at all floor and roof framing conditions.
- B. Miscellaneous Blocking: Provide solid blocking for all recessed and surface-mounted equipment and accessories.

3.04 TOLERANCES

- A. Maintain the following tolerances for all rough carpentry work. Defective work shall be removed and replaced at the Contractor's expense.
 - 1. Variation from Plumb:
 - a. 0-10': 1/4" maximum
 - 2. Variation in Plan:
 - a. 0-10': 1/4" maximum
 - b. 20' or more: 3/8" maximum

- 3. Variation in Openings:
 - a. Size: +/-1/8"
 - b. Location: +/-1/4"

3.05 COORDINATION

- A. Contractor shall be responsible for the coordination required by all other Sections of the Specifications as a part of the work of this Section. Coordination shall be provided to ensure the proper, timely and complete installation of all materials, equipment and systems of the project.

END OF SECTION

SECTION 06200

FINISH CARPENTRY

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Installation of the following items, unless arranged for otherwise:
 - 1. Doors and frames.
 - 2. Finish hardware specified in Division 8.
 - 3. Building specialties specified in Division 10.
 - 4. Building equipment specified in Division 11.
 - 5. Miscellaneous equipment and accessories as specified elsewhere.
- B. Related work specified elsewhere:
 - 1. Section 05999, Miscellaneous Metals: Mounting Brackets.
 - 2. Section 06100, Rough Carpentry: Redwood fascia and trim.
 - 3. Section 08220, Fiberglass Reinforced Polyester Doors and Frames.
 - 4. Section 09900, Painting.

1.02 QUALITY ASSURANCE

- A. Fabricate finish carpentry items in accordance with recommendations and quality standards of Architectural Woodwork Institute (AWI).
- B. Reference Standards: Conform to quality requirements of current editions of the following standards:
 - 1. PS 51: Hardwood and Decorative Plywood.
 - 2. PS 58: Basic Hardwood.
 - 3. NFPA (National Forest Products Association) National Design Specification for Wood Construction.
 - 4. WWPA: Western Wood Products Association.
 - 5. California Redwood Association.
 - 6. Applicable provisions of the codes referenced or as adopted by any jurisdiction with authority over this Project.

1.03 DELIVERY, STORAGE AND HANDLING

- A. Do not deliver materials and fabricated carpentry items until site conditions are prepared to receive the work. Protect items from weather while in transit.
- B. Store indoors in ventilated areas with a constant, minimum temperature of 60° F, maximum relative humidity of 25-55%.

1.04 WARRANTIES

- A. Provide manufacturer's standard one-year warranty covering defects in materials and workmanship for all hardware and shelving components.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY MATERIALS AND COMPONENTS

- A. Nails: Size and type to suit application.
- B. Bolts, Nuts, Washers, Lags, Pins and Screws: Size and type to suit application; non-rust finish in concealed location and finish to match material in exposed locations.

2.02 FABRICATION

- A. General: Fabricate finish carpentry items in accordance with recommendations of AWI and in accordance with site-determined measurements.

2.03 HARDWARE AND SHELVING ACCESSORIES

- A. Shelf Standards and Supports: Heavy-duty slotted standards and double-legged brackets, designed to support shelving widths as indicated on the Drawings.
 - 1. K & V No. 87 heavy-duty slotted standards and No. 186 slot brackets by Knappe and Vogt Co., Grand Rapids, MI, or equal.
- B. Shelf Standards and Supports: Normal-duty slotted standards and single-legged brackets, designed to support shelving widths as indicated on the Drawings.
 - 1. K & V 80 slotted standards and 180 steel brackets by Knappe and Vogt Co., Grand Rapids, MI, or equal.
 - 2. Finish/Color: Satin chrome.
 - 3. Structural Capacity: 75 lbs./lin. ft.
- C. Shelf Standards and Clip Supports: Normal-duty slotted recessed standards and steel shelf clips designed to support shelving widths as indicated on the Drawings.
 - 1. K & V 255 recessed slotted standards and 239 steel clips by Knappe and Vogt Co., Grand Rapids, MI, or equal.
 - 2. Finish/Color: Satin chrome.
 - 3. Structural Capacity: 50 lbs./lin. ft.
- D. Miscellaneous Mounting Brackets: Miscellaneous steel shapes, specified in Section 05999, for wall, stair and chair rails.

PART 3 EXECUTION

3.01 PREPARATION

- A. Contractor shall field measure conditions as required for the successful installation of all finish carpentry items.
- B. Installer shall examine the substrates and finishes under which the finish carpentry work is to be performed and notify the Contractor in writing of any condition that will prevent the successful installation of the work of this Section. Do not proceed with the installation until the unsatisfactory conditions have been corrected in a manner acceptable to the Installer. Proceeding with the work shall be considered acceptance of substrates and site conditions.
- C. Installer shall be responsible for inspecting all finish carpentry materials and culling any material not meeting the quality standards of these Specifications, or that exhibit defects such as knots, checks, splits, warping, bowing or excessive variation in color or grain. All materials installed in the finished construction shall be subject to the approval of the Architect.

3.02 INSTALLATION OF FINISH CARPENTRY MATERIALS

- A. General: Set and secure finish carpentry items in place rigid, plumb and square in a manner consistent with AWI requirements and recommendations.
- B. Materials shall be installed in accordance with site-determined measurements. When necessary to cut and fit on site, make material with ample allowance for cutting. Provide trim for scribing and site cutting. Ensure tolerances of not more than 1/8" in 10'.
- C. Tolerances: Conform to applicable AWI Standards for custom grade finish carpentry.
- D. Countersink semi-concealed anchorage devices used for wall-mount components and conceal with solid plugs of species to match surrounding wood. Place flush and ensure that direction of grain matches surrounding wood where scheduled for transparent finish.

3.03 INSTALLATION OF ITEMS SUPPLIED BY OTHER SECTIONS

- A. Install doors and frames, windows, finish hardware, fixtures, accessories, specialties and equipment supplied under other Sections for installation. Install items in accordance with manufacturer's instructions and recommendations.

3.04 MOUNTING HEIGHTS

- A. Install finish carpentry items at mounting heights shown on the Drawings or specified herein. All items in handicapped accessible areas shall comply with American National Standards Institute, Inc. (ANSI) publication A117.1-1992 and the Americans with Disabilities Act (ADA) 1990.

END OF SECTION

