

**SECTION 06 10 00**  
**ROUGH CARPENTRY**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Furnish and install the following:
  - 1. Fire retardant treated plywood backer panels for mounting of electrical panelboards, telephone/data backboards, HVAC and fire control equipment and other equipment.
  - 2. Plywood wall sheathing beneath gypsum wallboard at interior walls and partitions as blocking for wall mounted equipment and products.
  - 3. Various wood blockings, edgings, nailers, curbs, cants, grounds, furring, sheathing, framing members including wood preservative, as required for receipt of various finishes and surfacing materials, not described herein above.
  - 4. Rough installation hardware, including bolts, screws, spikes, nails, clips, and connection assemblies, as needed for installation of the rough carpentry work.
- B. Install the following furnished under the designated Sections:
  - 1. Metal door frames furnished under Section 08 11 13 - HOLLOW METAL DOORS AND FRAMES.
  - 2. Concealed anchorage devices for handicap handrails in toilet rooms: Section 10 81 00 – TOILET ACCESSORIES.

**1.2 RELATED REQUIREMENTS**

- A. Section 06 20 00 - FINISH CARPENTRY: Wood trim.
- B. Section 07 21 00 - THERMAL INSULATION: Thermal insulation between framing, and vapor barrier.
- C. Section 08 11 13 - HOLLOW METAL DOORS AND FRAMES: Furnishing hollow metal framing.
- D. Section 09 22 16 - NON-STRUCTURAL METAL FRAMING: Metal framing for drywall construction work.
- E. Section 09 29 00 - GYPSUM BOARD: Wallboard construction work, having taped and compounded joint finish.
- F. Section 09 91 00 - PAINTING: Applied primer and finish coatings to exposed to view rough carpentry work.
- G. Division 26 - ELECTRICAL: Providing and mounting electrical panels and equipment.

**1.3 REFERENCES**

- A. Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 01 42 00 - REFERENCES. Where these standards conflict with other specified requirements, the most restrictive

requirements shall govern.

1. APA - applicable grades and specifications.
2. APA PRB-108 Performance Standards and Policies for Structural-Use Panels.
3. ANSI A250.11 (formerly SDI 105) - Recommended Erection Instructions for Steel Doors and Frames.
4. ASTM D 3201 - Test Method for Hygroscopic Properties of Fire-Retardant Wood.
5. AWWA Standards and references for preservative treated wood including Standards UC1, UC2, UC3A, UC3B, UC4A, and P5
6. AWWA Standard UCFA – Fire Protection as Required by Codes Above Ground Interior Construction.
7. AWWA Standard UCFB – Fire Protection as Required by Codes Above Ground Exterior Construction.
8. AWWA M4 – Care Of Preservative Treated Wood Products.
9. NER-643: ACQ Preserve® and ACQ Preserve Plus® Wood Preservative Treatment, ICBO Evaluation Service.
10. MIL L-1914OE - Lumber and Plywood, Fire Retardant Treated.
11. SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
12. SPIB Grading Rules, current edition.
13. UL - Building Materials Directory
14. US. Department of Commerce Voluntary Product Standard PS1 for Construction and Industrial Plywood.
15. US. Department of Commerce Voluntary Product Standard PS2 for Wood-Based Structural-Use Panels.
16. US. Department of Commerce Voluntary Product Standard PS-20 - American Softwood Lumber Standard.
17. U.S. Department of Commerce Simplified Practice Recommendation R-16, for sizes and use classifications of lumber
18. American Lumber Standards Committee, National Lumber Grades Authority for Canadian Lumber, and applicable grading rules and standards of the various lumber associations whose species are being used for grades specified.

#### **1.4 ADMINISTRATIVE REQUIREMENTS**

A. Coordination:

1. Coordinate the work of this Section with the respective trades responsible for locating anchorages installed into blocking which is provided under this Section.
2. Coordinate work of this Section with the work of the various trades responsible for applying finish materials and other items to rough carpentry work, and ensure that the work performed hereunder is acceptable to such trades for the installation of their work.

#### **1.5 SUBMITTALS**

A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:

1. Product Data: Manufacturer's product data sheets, specifications, performance data, physical properties and installation instructions for products specified

herein.

2. Certifications:

- a. Written certification from the respective treatment plants indicating types of wood preservative treatment and fire-retardant treatment used, treatments method, applications instructions, and conformance to the requirements specified herein.
  - 1) Provide certification that fire retardant treatment materials do not contain ammonium phosphate.
  - 2) Provide report from ICC Evaluation Service on fire retardant treated wood flame spreading, strength, corrosion and hygroscopic properties.
  - 3) Provide report from ICC Evaluation Service on pressure preservative treated wood strength, corrosion, anti-fungi, and anti-insect properties.

**1.6 QUALITY ASSURANCE**

- A. General: Notify the Architect where conflicts apply between referenced standards and existing materials, and existing methods of construction.
  - 1. All lumber shall:
    - a. Be new, dressed four sides (S4S), clear and free from warping and other defects.
    - b. Have a moisture content not exceeding 19 percent when delivered to the project.
    - c. Be in accordance with the grading rules of the lumber manufacturer's association under whose jurisdiction the lumber is produced and bear the mark of grade and mill identification.
- B. Certifications:
  - 1. Plywood: Conform to the requirements of Product Standard PS-1, and bear applicable APA grade trademarks.
    - a. Plywood for electrical boards treated for retardance, meet Class I or a flame spread rating of 25 or less and bear U.L. label "Classified FRS".

**1.7 DELIVERY, STORAGE AND HANDLING**

- A. Storage and Handling Requirements:
  - 1. Protect wood materials from damage due to moisture, direct sunlight, excessive temperatures, surface contamination, corrosion and damage from construction operations and other causes.
  - 2. Store materials in an elevated dry location, protected by waterproof coverings.

**PART 2 - PRODUCTS**

**2.1 BOARD AND SHEET MATERIALS**

- A. Lumber for blocking, nailers and curbs as indicated or required: Hem-Fir, Douglas Fir, Eastern Spruce, Eastern Hemlock, or Southern Pine, surfaced dried stud or utility grade. Wood members shall be of sizes indicated on the Drawings or of the

same size as the members being braced.

1. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
  2. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.
- B. Furring: Nominal 1 by 3 inches or 1 by 4 inches Douglas Fir, Eastern Spruce, Eastern Hemlock, or Southern Pine, surfaced dried construction grade.
- C. Plywood and sheet products:
1. Marine grade plywood: EWA MARINE A-A EXT, fir veneer marine grade plywood, with plugged cores and sanded faces.
  2. For substrate beneath gypsum board: Square edge APA graded C-D-X EXT, touch-sanded, 1/2 inch thick, except as otherwise indicated on the Drawings
  3. For electric panel board mountings and similar uses: APA graded B-D INT, Group 2 species, touch-sanded, fire-retardant treated, 3/4 inch thick, except as otherwise indicated on the Drawings.
  4. For unspecified interior concealed from view locations: APA graded C-D PLUGGED INT, Group 2 species, thickness as indicated on the Drawings.

## **2.2 WOOD TREATMENTS**

- A. Treated wood products shall be produced by a single treatment plant, fully licensed by the chemical manufacturers, and conforming to the requirements specified herein.
1. Toxicity and Environmental Quality:
    - a. Products containing chromium will not be permitted.
    - b. Products containing arsenic will not be permitted.
    - c. Fire-retardant-treated wood products shall be free of halogens, sulfates, ammonium phosphate and formaldehyde.
  2. Dye wood or otherwise color code all treated wood at treatment plant to clearly distinguish the different treatments in the field.
  3. Kiln dry all treated lumber and plywood to the following maximum moisture content after treatment.
    - a. Lumber: 19 percent.
    - b. Plywood 15 percent.
    - c. Discard pieces with defects which might impair quality of work.
  4. Quality marks: Each piece of lumber and plywood shall be permanently affixed with a quality mark, containing the following information:
    - a. Identification of the inspection agency.
    - b. Standard to which material was treated.
    - c. Identification of the treating plant.
    - d. Fire retardant treated wood shall include: stamp signifying a FR-S rating
    - e. Preservative treated wood shall include: Retention and end use for which product is suitable.
- B. Fire retardant treated wood. Designated as "FRTW"

1. Chemical Manufacturer: Subject to compliance with the requirements specified herein, Products which may be incorporated in the work include:
    - a. Hickson Corporation, product, "Dricon".
    - b. Osmose, Inc., Griffin GA., product "FirePro".
    - c. Hoover Treated Wood Products, Inc., product "PyroGuard".
    - d. Viance, LLC., Charlotte, NC, product: "D-Blaze FRT".
  2. Fire retardant treated wood shall comply with the following requirements:
    - a. All fire-retardant lumber and plywood must have an Underwriters Laboratories stamp signifying a FR-S rating certifying a 25 or less flame spread and smoke developed value, when tested in accordance to ASTM E-84, or UBC Standard No. 42-1.
    - b. Corrosion rates: Less than one mil per year for carbon steel, galvanized steel, aluminum, copper, and red brass in contact with the fire retardant treated wood when tested in accordance with Federal Specification MIL-L-19140E Paragraph 4.6.5.2.
    - c. The fire retardant treated wood must have an equilibrium moisture content of not more than 25 percent when tested in accordance with ASTM D 3201 procedures at 95 percent relative humidity and 80 degrees Fahrenheit.
    - d. Fire retardant chemical: Registered for use as a wood preservative by the U.S. Environmental Protection Agency.
    - e. Testing: Fire performance and strength properties for both lumber and plywood, of the fire retardant treated wood shall be recognized by issuance of a ICC Evaluation Service Report. Fire retardant chemical must not damage the middle lammella of the wood structure when exposed to 170 degrees Fahrenheit and 90 percent relative humidity for 23 days.
- C. Pressure preservative treated wood. Designated as "PT"
1. Chemical Manufacturer: Subject to compliance with the requirements specified herein, Products which may be incorporated in the work include:
    - a. Osmose, Inc., Griffin GA., product "NatureWood".
    - b. Universal Forest Products, Inc., Grand Rapids MI., product "ProWood ACQ".
    - c. Viance, LLC., Charlotte, NC., product "Preserve"
  2. Treatment: Ammoniacal Copper Quaternary Compound (ACQ), arsenic-free and chromium-free chemical "ACQ Preservative" in accordance with AWPA Standards. Apply the preservative in a closed cylinder by pressure process in accordance with AWPA Standard C15.
    - a. Minimum preservative retention for floor plates, framing, lumber and plywood above ground use: 0.25 pounds per cubic foot (4.0 kg/m<sup>3</sup>) of ACQ chemical, in accordance with AWPA UC1, UC2, UC3A, and UC3B, or NER-643 as appropriate.
    - b. Minimum preservative retention for framing, lumber and plywood in contact with water, ground, concrete and masonry: 0.40 pounds per cubic foot (6.4 kg/m<sup>3</sup>) of ACQ chemical, in accordance with AWPA UC4A, UC4B, UC4C, or NER-643 as appropriate.
    - c. Minimum preservative retention for lumber and plywood in permanent wood foundations: 0.60 pounds per cubic foot (9.6 kg/m<sup>3</sup>) of ACQ chemical, in accordance with AWPA UC4B, or NER-643.

3. Fixation of Chemical: Treated wood shall not be shipped from treatment plant until fixation of the preservative has occurred in the wood.

## **2.3 ACCESSORIES**

- A. Adhesives:
  1. General: Provide adhesives approved which are Low-VOC or non-VOC, non-flammable, water-proof after cured, odor free.
  2. Adhesive for lamination and fabrication of wood and plywood items: Exterior adhesives containing no urea formaldehydes, having a VOC limit of 70 g/L.
  3. Adhesive for subfloors and underlayment: High strength, waterproof and non-freezing adhesive complying with AFG-01 "Frozen Lumber Test" and ASTM 3498, and having a VOC limit of 50 g/L.
- B. Nails (interior and exterior): Galvanized common nails, of size and type to suit application and as required by state and local building codes.
- C. Screws:
  1. Screws for interior applications: Flat head electroplated-galvanized wood screws of the appropriate sizes.
  2. Screws for exterior applications:
    - a. For pressure preservative treated wood: Flat head stainless steel, wood screws, of the appropriate sizes. Aluminum and coated metals are prohibited.
    - b. For general application (non-pressure preservative treated wood): Flat head hard aluminum, or stainless steel, wood screws, of the appropriate sizes.
- D. Anchor bolts, expansion bolts and lag screws: Hot-dipped galvanized steel, of the following types:
  1. For lumber having actual thickness of 1-1/2 inches or greater to masonry and concrete: Anchor bolts or expansion bolts, as most applicable for the specific receiving surface material, 3/8-inch minimum diameter, spaced as shown on drawings, and staggered as far as practicable. Countersink all bolt heads, and provide head washers of matching material.
  2. For lumber having actual thickness of greater than 7/8-inch but less than 1-1/2 inches to masonry and concrete: Anchor bolts or expansion bolts, as most applicable for the specific receiving surface material, at least 1/4-inch diameter of the most appropriate lengths for the specific application, spaced as shown, and staggered as far as practicable. Countersink all bolt heads, and provide head washers of matching material.
  3. For lumber having actual thickness of 7/8-inch and less: Anchor bolts or expansion bolts, at least 1/4-inch in diameter; or screws, of the most appropriate sizes; in lengths most suitable for the specific application, countersunk, spaced, and staggered.
- E. Protection paper: Canadian red-rosen paper or kraft paper.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. All materials shall be inspected before use, with all checked, split and otherwise deficient stock rejected, or used only for miscellaneous blocking, furring or other incidental use. The Contractor shall be responsible for replacing all lumber which, due to warpage, twist, splitting, or checking, results in unsatisfactory work. Such replacement shall be required at any time, whether before or after application of finish material under other Sections.
- B. Verify exact locations of toilet accessories, door stops and similar items with Architect prior to installation of blocking for accessories.

### **3.2 INSTALLATION - GENERAL**

- A. Closely coordinate the installation of the rough carpentry work with the work of other trades responsible for the installation of interfacing or overlaying materials, so as not to delay the work of the related trades.
- B. Erect all rough carpentry work plumb, level, and true with tight, close fitting joints, securely attached and braced to surrounding construction, all in a first class workmanlike manner. Counterbore for bolt heads, nuts, and washers where required to avoid interference with other materials. Bear complete responsibility for structural integrity, connections, and anchorage of all rough carpentry work.
- C. 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.
- D. Use as long lengths as practicable for wood nailers, blockings, and curbs, to minimize number of joints, and attach the members with the types, and spacing, of fasteners specified herein.
- E. Install blocking, grounds and furring, as required for proper attachment of the work of other trades, in accordance with the requirements provided by the respective related trades.
  - 1. Spacing for furring and strapping shall not exceed 16 inches on center.
- F. Field cuts of fire retardant treated lumber: Do not rip or mill fire retardant treated lumber. Only end cuts, drilling holes and joining cuts are permitted.
- G. Field cuts of ACQ pressure-treated lumber: Apply solution of copper naphthenate containing a minimum of 2 percent metallic copper in-solution, in accordance with AWWA standard M4. Brush liberally all cuts and holes.
- H. Install concealed from view plywood with specified fasteners spaced not more than 10 inches on centers.
- I. Install fire-treated plywood backer boards with counter-sunk galvanized fasteners, of specified sizes, spaced not more than 12 inches on centers.

### **3.3 INSTALLATION – EQUIPMENT BACKBOARDS**

- A. Provide panel mounting backboards for HVAC, Fire Prevention, Electrical, and telephone/data equipment. Fabricate panels using fire-retardant treated 3/4 inch thick panels mounted to fire-retardant treated 2 by 4's. Provide a nominal space of 3-1/2

inches behind panels to permit wiring.

**3.4 TOLERANCES**

- A. Framing members: Maximum deviation more than 1/4 inch in 10 feet from true or plumb position.

**END OF SECTION**