

SECTION 06100

ROUGH CARPENTRY

PART 1 - GENERAL

1.01 RELATED DOUCMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Wood blocking and nailers.
 - 2. Wood furring.
 - 3. Sheathing applied to wood furring.
 - 4. Plywood backing panels.
 - 5. Building paper.
 - 6. Blocking for toilet accessories and medical equipment, both Contractor provided and Owner furnished.
 - 7. Staining of furring supporting exterior wood siding.
- B. Related Sections include the following:
 - 1. Division 5 Section "Cold-Formed Metal Framing" for sheathing applied to cold formed framing.
 - 2. Division 6 Section "Finish Carpentry" for nonstructural carpentry items exposed to view and not specified in another Section.

1.03 DEFINITIONS

- A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise indicated.
- B. Dimension Lumber: Lumber of **2 inches nominal** or greater but less than **5 inches nominal** in least dimension.
- C. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NELMA - Northeastern Lumber Manufacturers Association.
 - 2. NLGA - National Lumber Grades Authority.

1.04 SUBMITTALS

- A. General: Submit in accordance with Section 01300.
- B. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used, net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
 - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials, both before and after exposure to elevated temperatures when tested according to ASTM D 5516 and ASTM D 5664.
 - 3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
 - 4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

- C. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:
1. Preservative-treated wood and plywood.
 2. Fire-retardant-treated plywood.
 3. Power-driven fasteners.
 4. Powder-actuated fasteners.
 5. Expansion anchors.

1.05 QUALITY ASSURANCE

- A. Source Limitations for Fire-Retardant-Treated Wood: Obtain each type of fire-retardant-treated wood product through one source from a single producer for both treatment and fire-retardant formulation.
- B. Fire-Test-Response Characteristics: For assemblies with fire-resistance ratings, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack plywood and other panels flat. Place spacers between each bundle of lumber, plywood, and panel products to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
 2. Products: Subject to compliance with requirements, provide one of the products specified.

2.02 WOOD AND PANEL PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
1. Factory mark each piece of lumber with grade stamp of grading agency.
 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 3. Provide dressed lumber, S4S, unless otherwise indicated.
 4. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.
- B. Wood Structural Panels:
1. Plywood: DOC PS 1.
 2. Thickness: As needed to comply with requirements specified but not less than thickness indicated.
 3. Factory mark panels according to indicated standard.

2.03 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWPA C2 (lumber) and AWPA C9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction, and containing no arsenic or chromium and the following:
 - a. Copper Azole, CBA-A or CA-B, Wolmanized Natural Select.
- B. Kiln-dry material after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.
- D. Application: Treat items indicated on Drawings, and the following:
 - 1. Wood nailers, blocking, roof sleepers, stripping, and similar members in connection with roofing, flashing, and air/vapor barriers.
 - 2. Wood blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
 - 3. Wood furring supporting wood siding.
 - 4. Pressure-treat wood members in contact with the ground or fresh water with water-borne preservatives to a minimum retention of 0.40 pcf.

2.04 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, provide materials that comply with performance requirements in AWPA C27 (plywood). Identify fire-retardant-treated wood with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Use treatment for which chemical manufacturer publishes physical properties of treated wood after exposure to elevated temperatures, when tested by a qualified independent testing agency according to ASTM D 5516, for plywood.
 - 2. Use treatment that does not promote corrosion of metal fasteners.
 - 3. Use Interior Type A High Temperature (HT), unless otherwise indicated.
- B. Kiln-dry material after treatment to a maximum moisture content of 19 percent for and 15 percent for plywood. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Application: Plywood backing panels.

2.05 MISCELLANEOUS LUMBER

- A. General: Provide lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.
 - 3. Furring supporting exterior wood siding.
- B. For items of dimension lumber size, provide No. 1, No.2 or better grade lumber with 19 percent maximum moisture content and the following species:
 - 1. Spruce-pine-fir; NLGA.
- C. For concealed boards, provide lumber with 19 percent maximum moisture content and the following species and grades:
 - 1. Spruce-pine-fir, Standard or 3 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
 - 2. Eastern softwoods, No. 3 Common grade; NELMA.

- D. 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.

2.06 WALL SHEATHING

- A. Plywood Wall Sheathing: Exposure 1, Structural I sheathing.
 - 1. Span Rating: Not less than 32/16.
 - 2. Nominal Thickness: Not less than **1/2 inch**.
 - 3. Species: Fir.
 - 4. Plywood in direct contact with concrete or within 18 inches of grade shall be preservative treated.

2.07 PLYWOOD BACKING PANELS

- A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than **1/2 inch** nominal thickness.

2.08 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 1. Where rough carpentry is exposed to weather, in ground contact, in roof area, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
 - 2. For preservative treated wood, provide stainless steel fasteners.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Screws for Fastening Furring Supporting Exterior Wood Siding: Heavy-duty, flat head stainless steel screws in length required to penetrate through furring, water-resistant gypsum sheathing and into light gage steel framing not less than 3 full threads.
- F. Lag Bolts: **ASME B18.2.1**.
- G. Bolts: Steel bolts complying with **ASTM A 307, Grade A**; with **ASTM A 563** hex nuts and, where indicated, flat washers.
- H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

2.09 WEATHER-RESISTANT SHEATHING PAPER

- A. Building Paper: Exterior wall, breathable underlayment fabricated from spun bonded polypropylene and having the following properties:
 - 1. Thickness and Weight: 0.023 inches thick and 5.161 oz./sq. yd.
 - 2. Water Vapor Transmission: 212 perms per ASTM E 96-00, Method B.
 - 3. Water Penetration Resistance: 68 cm per ATTCC-127.
 - 4. Surface Burning Characteristics: ASTM E 84; Class A for flame spread and smoke developed.
 - 5. Product: WallShield; Proctor Group, Ltd, distributed by VaproShield LLC; phone: (866) 731-7663; web site: www.VaproShield.com, Local Rep. Bob McEachern 603-494-3757; no substitutions. Asphalt felt is not acceptable.
 - a. Color: Black.

- B. Adhesive: Manufacturer's spray adhesive for spot adhering building paper to substrate.

2.10 MISCELLANEOUS MATERIALS

- A. Stain for Furring at Wodd Siding: Exterior water-based semisolid stain; Samuel Cabot Incorporated, 1100 Series.
 - 1. Color: Black.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- D. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- E. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber and plywood.
 - 1. Use copper naphthenate for items not continuously protected from liquid water.
- F. Securely attach rough carpentry and panel work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. NES NER-272 for power-driven fasteners.
 - 2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
 - 3. National Evaluation Report No. NER-272 for pneumatic or mechanical driven staples, P-Nails, and allied fasteners.
- G. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.
 - 1. Use hot-dip galvanized or stainless steel nails where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity.
 - 2. Use stainless steel fasteners when fastening pressure preservative treated lumber or plywood.

3.02 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Install wood blocking and nailers to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, casework, furnishings, or similar construction. Provide 3/4-inch thick plywood covering a minimum of 32 inches square for toilet and medical accessories. Provide 1-1/2 inch thick blocking minimum, for grab bars and handrail supports. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

- C. Roofing Nailers: Install wood nailers of same total thickness as insulation. Anchor perimeter nailers to substrate in a manner to resist a force of 75 pounds per linear foot in any direction. Top nailer shall be fastened through the lower layers and into metal deck.

3.03 WOOD FURRING INSTALLATION

- A. Furring Supporting Siding: Stain all sides of furring supporting exterior wood siding in accordance with manufacturer's instructions.
- B. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
 - 1. Predrill furring to prevent splitting during installation.
 - 2. Install 2- by 3-inch nominal size furring vertically, fastened 12 inches on center and penetrating through insulation and sheathing into light gage steel framing studs not less than 3 full threads. Heads of fasteners shall be flush with surface of furring.

3.04 WOOD STRUCTURAL PANEL INSTALLATION

- A. General: Comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial," for types of structural-use panels and applications indicated.
- B. Fastening Methods: Fasten panels as indicated below:
 - 1. Plywood Backing Panels: Screw to supports.

3.05 WEATHER-RESISTANT SHEATHING-PAPER INSTALLATION

- A. Cover rigid insulation with weather-resistant sheathing paper (building paper – WallShield) as follows:
 - 1. Apply horizontally with a 6-inch overlap and a 6-inch end lap;lapping in manner to shed water. Spot adhere to rigid insulation using manufacturer's recommended spray adhesive. Follow immediately with installation of supports for exterior wood siding
 - 2. Apply paper to fully cover insulation and overlap flashing.

END OF SECTION