SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Wall sheathing.
2. Roof sheathing.
3. Rooftop support curbs for laundry chute vent.
4. Wood blocking and nailers.
5. Plywood backing panels.
6. Blocking for toilet accessories, including Owner furnished toilet accessories.
7. Blocking for Owner furnished items.
8. New dormer for Shed No. 2.

B. Related Requirements:
1. Division 02 Section "Selective Structure Demolition and Alterations" for repairs to existing sheds.
2. Division 07 Section "Building Insulation" for rigid insulation and z-furring supporting plywood wall sheathing.
3. Division 07 Section "Weather Barriers" for water-resistive barrier at exterior walls.
4. Division 14 Section "Facility Chutes" for laundry chute vent.

1.3 DEFINITIONS

A. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

B. 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.

1.4 SUBMITTALS

A. 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 fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
2. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency 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.

B. Evaluation Reports: For the following, from ICC-ES:
1. Fire-retardant-treated wood.
2. Fire-retardant-treated plywood.
3. Power-driven fasteners.
4. Powder-actuated fasteners.
5. Expansion anchors.

1.5 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. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces.

B. Stack lumber and panels flat with spacers beneath and between each bundle to provide air circulation. Protect lumber and panels from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.
1. For lumber pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS FOR SHEATHING

A. 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. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory."

2.2 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.

B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

C. Plywood: DOC PS 1.

D. Thickness for Panel Products: As needed to comply with requirements specified, but not less than thickness indicated.

E. Factory mark panels to indicate compliance with applicable standard.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
1. Use treatment that does not promote corrosion of metal fasteners.
2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity.
4. Design Value Adjustment Factors for Lumber: Treated lumber shall be tested according ASTM D 5664 and design value adjustment factors shall be calculated according to ASTM D 6841.
5. Design Value Adjustment Factors for Plywood: Treated lumber plywood shall be tested according ASTM D 5516 and design value adjustment factors shall be calculated according to ASTM D 6305. Span ratings after treatment shall be not less than span ratings specified. For roof sheathing, span ratings for temperatures up to 170 deg F shall be not less than span ratings specified.

C. 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 that does not comply with requirements for untreated material.

D. Identify fire-retardant-treated wood and plywood with appropriate classification marking of qualified testing agency.

E. Application: Treat items indicated on Drawings, and the following:
1. Concealed framing and blocking, both lumber and plywood.
2. Roof and wall sheathing, except as indicated otherwise.

a. Roof and wall sheathing for new dormer on Shed No. 2 not required to be fire-retardant-treated.

3. Plywood backing panels.

2.4 DIMENSION LUMBER FRAMING

A. Studs, Rafters and Miscellaneous Framing: Construction or No. 2 or better.
1. Maximum Moisture Content: 19 percent.
2. Species: Spruce-pine-fir; NLGA or NeLMA.
3. Location: New dormer for Shed No. 2.

2.5 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
1. Blocking.
2. Nailers.
3. Rooftop support curbs for linen chute vents.

B. For items of dimension lumber size, provide No. 2 or better lumber for miscellaneous construction. Standard, Stud, or No. 3 grade lumber for blocking.
1. Species: Spruce-pine-fir; NeLMA or 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 No. 3 Common grade; NeLMA, or NLGA.

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.

E. Miscellaneous lumber shall be fire-retardant-treated.

2.6 WALL SHEATHING

A. Plywood Wall Sheathing: APA graded, Exposure 1 sheathing.
1. Span Rating: Not less than 32/16.
2. Nominal Thickness: Not less than 1/2 inch.
3. Species: Fir.
4. Shall be fire-retardant-treated.

2.7 ROOF SHEATHING

A. Plywood Roof Sheathing: APA graded, Exposure 1 sheathing.
1. Span Rating: Not less than 32/16.
2. Nominal Thickness: Not less than 15/32 inch.
3. Species: Fir.
4. Shall be fire-retardant-treated.

2.8 PLYWOOD BACKING PANELS

A. 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.

2.9 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
   1. For roof and wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
   2. Where pressure-preservative treated lumber or panels are used, provide Type 304 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. Lag Bolts: ASME B18.2.1.

F. Screws for Fastening Wood Structural Panels to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
   1. For wall and roof sheathing panels, provide screws with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.

G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four 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. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

PART 3 - EXECUTION

3.1 FRAMING 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 nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

C. Provide blocking as indicated and as required to support facing materials, fixtures, specialty items, and trim.

D. Provide fire-retardant-treated blocking in furred spaces, stud spaces, and other concealed cavities as indicated.

E. 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.

F. Securely attach rough carpentry 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. Published requirements of metal framing anchor manufacturer.

G. Use steel common 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. Drive nails snug but do not countersink nail heads unless otherwise indicated.
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 for fastening pressure preservative treated materials.

3.2 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, window treatment, handrail brackets, shelving, residential casework, building specialties, clothes rods, wire shelving, window sills, drywall window return shims, countertop supports, resident room mailboxes, Owner furnished items, metal flashing, siding and trim support, roof blocking, base flashing backer, and equipment supports, or similar construction. Provide 3/4-inch thick plywood covering a minimum of 32 inches square for toilet accessories. Provide 1-1/2 inch thick solid blocking minimum, for exterior wall mounted solid vinyl brie de soliel, 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.
1. Install blocking for grab bars, and handrail supports to withstand a downward load of at least 250 lbf, when tested according to method in ASTM F 446.
2. Provide concealed wood blocking behind gypsum wallboard where door stops are to be installed.
3. Provide fire retardant treated wood and plywood.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated. Where possible, secure anchor bolts to formwork before concrete placement.

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.

3.3 MISCELLANEOUS FRAMING INSTALLATION

A. Dormer Framing: Install framing members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit.

3.4 SHEATHING INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by 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."

D. 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. Install fasteners without splitting wood.

E. Coordinate wall and roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.5 WOOD STRUCTURAL PANEL INSTALLATION

A. General: Comply with structural drawings and applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

B. Fastening Methods: Fasten panels as indicated below:
1. Wall and Roof Sheathing:
a. Nail to wood framing.
b. Screw to cold-formed metal framing.
c. Space panels 1/8 inch apart at edges and ends.
2. Plywood Backing Panels: Screw to supports.

END OF SECTION 061000