

SECTION 06 10 00  
ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Roofing related rough carpentry.
  2. Wood blocking, cants, and nailers.
  3. Wood furring and grounds.
  4. Wood sleepers.
  5. Plywood backing panels.

1.2 PRICE AND PAYMENT PROCEDURES

- A. This specification Section shall be bid exactly as written. No substitutions, no changes in materials and no changes to fastener and anchor types will be considered.

1.3 DEFINITIONS

- A. Boards or Strips: Lumber of less than 2 inches nominal (38 mm actual) size in least dimension.
- B. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) size or greater but less than 5 inches nominal (114 mm actual) size in least dimension.
- C. Exposed Framing: Framing not concealed by other construction.
- D. OSB: Oriented strand board.
- E. Timber: Lumber of 5 inches nominal (114 mm actual) size or greater in least dimension.

1.4 ACTION SUBMITTALS

- A. Product Data: Technical 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 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.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: Submit certificates for dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- B. Evaluation Reports: Submit reports from ICC-ES:
  1. Fire retardant treated wood.
  2. Power driven fasteners.
  3. Post installed anchors.
  4. Metal framing anchors.

#### 1.6 QUALITY ASSURANCE

- A. 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.
- B. Coordination: Coordinate all Work with Roofing and roofing related Sections. All rough carpentry shall be installed to withstand the performance requirements of the roofing system, Roofing Specialties, Roof Accessories and Sheet Metal Flashing and Trim.
  1. Coordinate all anchorages and fasteners to ensure only stainless steel fasteners are utilized.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.
  1. Protect fire retardant materials against high humidity and moisture during storage and erection.

### PART 2 - PRODUCTS

#### 2.1 WOOD PRODUCTS

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules writing agency certified

by the ALSC Board of Review. Grade lumber 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. Dress lumber, S4S, unless otherwise indicated.
3. Unless otherwise indicated, all wood products shall be Fire Retardant Treated Wood.

B. Maximum Moisture Content of Lumber: 15 percent.

## 2.2 FIRE RETARDANT TREATED MATERIALS

A. All rough carpentry materials shall be fire retardant treated unless specifically indicated in writing by the Architect.

B. Materials shall comply with requirements, that are acceptable to authorities having jurisdiction, and with fire test response characteristics specified determined by testing identical products per test method indicated by a qualified testing agency.

C. 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 (3.2 m) beyond the centerline of the burners at any time during the test.

1. Treatment shall not promote corrosion of metal fasteners.
2. Exterior Type: Treated materials shall comply with requirements specified 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. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D 5664 and design value adjustment factors shall be calculated according to ASTM D 6841. For roofing system related wood provide material with adjustment factors of not less than 0.85 modulus of elasticity and 0.75 for extreme fiber in bending for Project's climatological zone.

D. Kiln dry lumber after treatment to maximum moisture content of 19 percent. Kiln dry plywood after treatment to maximum moisture content of 15 percent.

E. Identify fire retardant treated wood with appropriate classification marking of qualified testing agency.

F. Application: Treat all rough carpentry unless otherwise indicated.

## 2.3 MISCELLANEOUS LUMBER

A. Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.

3. Rooftop equipment bases and support curbs.
  4. Cants.
  5. Furring.
  6. Grounds.
  7. Utility shelving.
- B. Dimension Lumber Items: Construction or No. 2 grade lumber of any of the following species:
1. Hem-fir (north); NLGA.
  2. Hem-fir; WCLIB or WWPA.
  3. Western woods; WCLIB or WWPA.
  4. Northern species; NLGA.
  5. Eastern softwoods; NeLMA.
- C. 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.
- D. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent over nails and damage to paneling.

## 2.4 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: Plywood, DOC PS 1, Exterior, A-C, fire retardant treated, in thickness indicated or not less than 3/4 inch (19 mm) nominal thickness.

## 2.5 FASTENERS

- A. Fasteners: Size and type indicated complying with requirements specified for material and manufacture.
1. For all rough carpentry provide fasteners of Type 316 stainless steel.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Post Installed Anchors: Stainless steel fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 ICC-ES AC58 ICC-ES AC193 or ICC-ES AC308 as appropriate for the substrate that will not degrade in contact with fire retardant treated materials.
1. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

## 2.6 MISCELLANEOUS MATERIALS

- A. Sill Sealer Gaskets, Provide where indicated: Closed cell neoprene foam, 1/4 inch (6.4 mm) thick, selected from manufacturer recommended widths to suit width of sill members indicated.

- B. Flexible Flashing: Composite, self adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to high density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch (0.6 mm).
- C. Adhesives for Gluing to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
- D. Water Repellent Preservative: NWWDA tested and accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Framing Standard: Comply with AF&PA's WCD 1 Details for Conventional Wood Frame Construction, unless otherwise indicated.
- B. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- C. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- D. Install fire retardant treated plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels with classification marking of testing agency exposed to view.
- E. Install sill sealer gasket to form continuous seal between sill plates and substrate.
- F. Do not splice structural members between supports unless otherwise indicated.
- G. Provide blocking and framing as indicated and as required to support facing materials, fixtures, appliances, wall mounted items, specialty items, and trim.
- H. Provide fire blocking in furred spaces, stud spaces, and concealed cavities as indicated and as follows:
  - 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches (2438 mm) o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
- I. Sort and select lumber so natural characteristics do 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.

- J. Securely attach rough carpentry Work to substrate by anchoring and fastening as indicated, complying with the following:
  - 1. Table 2304.9.1, Fastening Schedule, in ICC International Building Code (IBC).
  - 2. ICC-ES evaluation report for fastener.
  
- K. Use Stainless Steel Fasteners 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.

### 3.2 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. 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. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

### 3.3 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as necessary for tolerance of finish work.

### 3.4 INSTALLATION OF BLOCKING AND NAILERS FOR ROOFING AND PARAPETS

- A. General:
  - 1. Comply with ANSI/SPRI ES-1.
  - 2. Minimum Member Size: 2 inch by 6 inch nominal minimum unless exceeded on the Drawings.
  - 3. Fasteners:
  - 4. Stainless steel only; Do not use fasteners other than stainless steel for roof blocking, nailers, fascia and coping support and anchorage and all parapet construction.
    - a. Countersink heads of all fasteners.
    - b. Fastener types as required for substrate conditions.
    - c. Diameter and spacing as required to resist forces indicated.
  - 5. Fastener Spacing:
    - a. Threaded Anchor Bolts; 3/8 inch or larger to meet roofing system Performance Requirements:
      - 1) Utilize 16mm 5/8 inch O.D. washers or larger.

- 2) Maximum Spacing: 36 inches.
      - 3) Stagger 1/3 of the nailer width.
    - b. Other fastener types:
      - 1) Maximum Spacing:
        - a) Typical: 12 inches O.C. typical
        - b) Up to 16 inches O.C. where necessary to match spacing of structural members.
      - 2) Stagger 1/3 the nailer width.
      - 3) At ends of nailers lengths (including butt ends and terminal ends):  
Install 2 fasteners and within 6 inches of ends.
  6. Anchor nailers and blocking to resist minimum vertical force of 300 lbs/ft. in any direction.
    - a. Locate fasteners approximately 4 inches from ends but not less than 75mm  
3 IN.
    - b. Use minimum of 3 anchors for each nailer section.
    - c. Where members are wider than 6 inches, stagger fasteners from side to side to avoid splitting of the wood member; predrill as required to avoid splitting.
    - d. Corner region enhancements:
      - 1) Double the above listed vertical force which must be resisted.
      - 2) Length and width of corners as prescribed by ANSI/SPRI RP-4:
        - a) 40 percent of the building height, but not less than 8 feet.
- B. Nailers used for perimeter securement of roofing membranes:
1. Install nailers where indicated and where required to secure perimeter of membrane roofing.
  2. Match height of nailers to adjacent insulation.
  3. Where multiple layers are required to match depth of insulation:
    - a. Attach base layer as indicated in the General paragraph in this Section.
    - b. Apply a bead of construction adhesive between all laminations.
    - c. Attach subsequent layers using fastener type which is appropriate for wood-to-wood anchorage to resist uplift.
    - d. Size and locate fasteners as required to resist uplift loading indicated.
- C. Blocking used for securement of sheet metal edge flashings, parapet copings, and similar items:
1. Install blocking as indicated and as required to comply with this Section and all roofing system uplift requirements indicated in Section 07 54 00.
- D. Metal Wall Backing: Specified in Section 05 40 00 for walls utilizing metal stud construction.

### 3.5 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron treated wood becomes wet, apply EPA registered borate treatment. Apply borate solution by spraying to comply with EPA registered label.

- B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA registered borate treatment. Apply borate solution by spraying to comply with EPA registered label.

END OF SECTION