SECTION 06 1053 - MISCELLANEOUS ROUGH CARPENTRY

Revise this Section by deleting and inserting text to meet Project-specific requirements.

This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

Delete hidden text after this Section has been edited for the Project.

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.

B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:

1. The current version of the *Uniform General Conditions for Construction Contracts*, State of Texas, available on the web site of the Texas Facilities Commission.
2. The University of Houston's *Supplemental General Conditions and Special Conditions for Construction*.

1.2 SUMMARY

A. Section Includes:
1. Rooftop equipment bases and support curbs.
2. Wood blocking, cants, and nailers.
3. Wood furring and grounds.
4. Wood sleepers.

Delete "Utility shelving" Subparagraph below if specified as finish carpentry.

5. Utility shelving.
6. Plywood backing panels.

1.3 DEFINITIONS

Retain terms that remain after this Section has been edited for a project.

A. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.

Retain paragraph below if lumber grading agencies are referenced with products.

B. Lumber grading agencies, and the abbreviations used to reference them, include the following:

Retain only those grading agencies referenced in this Section.

1. NHLA: National Hardwood Lumber Association.
2. NLGA: National Lumber Grades Authority.
3. SPIB: The Southern Pine Inspection Bureau.
4. WCLIB: West Coast Lumber Inspection Bureau.
5. WWPA: Western Wood Products Association.

1.4 ACTION 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. Species, grading, and intended use of lumber proposed for use on Project; by grading agency accredited by ALSC Board of Review. Clearly note requested substitutions that differ from those specified.
2. 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 and net amount of preservative retained.
3. 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.
4. 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.
5. Engineered Wood Products: Manufacturer's literature indicating component materials and structural capacities of products.
6. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
7. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

Retain paragraph and associated subparagraphs below if Project is to be LEED v4 certified.

B. LEED Action Submittals (Projects authorized for LEED certification only)

1. Building Product Disclosure and Optimization:
    a. Leadership Extraction Practices
        1) Extended Producer Responsibility (EPR): Submit documentation indicating that manufacturers have a take back or recycling program for the product purchased.
        2) Wood Products: Certified by Forest Stewardship Council or USGBC approved equivalent.
            a) Chain-of-Custody Certificates: For certified wood products. Include statement of costs.
            b) Chain-of-Custody Qualification Data: For manufacturer and vendor.
        3) Provide details of biobased material per Sustainable Agriculture Network's Sustainable Agriculture Standard or USDA certified biobased product. Indicate cost, location of extraction, manufacture, and purchase of material.
        4) Recycled Content: For products having recycled content, indicate percentages by weight of post-consumer and pre-consumer recycled content.
            a) Include statement indicating costs for each product having recycled content.
    b. Sourcing of Raw Materials: For products that are required to comply with requirements for regional materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material.
        1) Include statement indicating distance to Project, cost for each regional material and the fraction by weight that is considered regional.
        2) Product Certificates: For materials manufactured within 100 miles of Project, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project and cost for each raw material.

2. Indoor Environmental Quality, Low Emitting Materials: Building Products must be tested and compliant with the California Department of Public-Health (CDPH) Standard Method V1.1-2010, using the applicable exposure scenario.
    a. Paints, and Coatings: For wet applied on site products, include printed statement of VOC content, showing compliance with the applicable VOC limits of the California Air Resources Board (CARB) 2007, Suggested Control Measure (SCM) for Architectural Coatings, or the South Coast Air Quality Management District (SCAQMD) Rule 1113, effective June 3,-2011.
    b. Adhesives and Sealants: For wet applied on site products, submit printed statement showing compliance with the applicable chemical content

requirements of SCAQMD Rule 1168, effective July 1, 2005 and rule amendment date of January 7, 2005.

1) Product Data: For installation adhesives, indicating VOC content.

c. Alternative tests for VOC above include ASTM D2369-10; ISO 11890 part 1; ASTM D6886-03; or ISO 11890-2.

d. Methylene Chloride and perchloroethylene may not be added to paints, coating, adhesive or sealants.

e. Composite Wood: Submit documentation showing that wood used in the project has low formaldehyde emissions that meet the California Air Resources Board ATCM for formaldehyde requirements for ultra-low emitting formaldehyde (ULEF) resins or no added formaldehyde resins.

f. Provide General Emissions Evaluation certificates for adhesives, sealants showing compliance with California Department of Public Health v1.1 emissions testing or equivalent.

3. Laboratory Test Reports: For installation adhesives indicating compliance with requirements for low-emitting materials.

1.5 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Preservative-treated wood.
2. Fire-retardant-treated wood.
3. Power-driven fasteners.
4. Powder-actuated fasteners.
5. Expansion anchors.

Retain paragraph and associated subparagraphs below if Project is to be LEED v4 certified.

B. LEED Informational Submittals:

1. Building Product Disclosure and Optimization - Sourcing of Raw Materials:

a. Raw Material Sources and Extraction Reporting: Submit Raw materials supplier corporate Sustainability Reports (CSRs); documenting responsible extraction; including extraction locations, long term ecologically responsible land use, commitment to reducing environmental harms from extraction and manufacturing processes, and a commitment to meeting applicable standards or programs that address responsible sourcing criteria

1) Submit manufacturers' self-declared reports

2) Submit third party verified corporate sustainability reports (CSR) using one of the following frameworks:

a) Global Reporting Initiative (GRI) Sustainability Report
b) Organization for Economic Co-operation and Development (OECD)
c) Guidelines for Multinational Enterprises
d) UN Global Compact
e) ISO 26000
f) USGBC approved program.

2. Building Product Disclosure and Optimization - Material Ingredients

a. Material Ingredient Optimization: Submit manufacturer's Environmental Product Declaration (EPD) or at least one of the following:

1) GreenScreen V1.2 Benchmark: Third party report prepared by a licensed GreenScreen List Translator, or a full GreenScreen Assessment.
2) Cradle to Cradle: Manufacturer's published literature for the product bearing the Cradle to Cradle logo.
3) International Alternative Compliance Path - REACH Optimization
4) Declare: Manufacturer's completed Product Declaration Form
5) Other programs approved by USGBC

b. Product Manufacturer Supply Chain Optimization: Submit documentation from manufacturers for products that go beyond material ingredient optimization as follows:

1) Are sourced from product manufacturers who engage in validated and robust safety, health, hazard, and risk programs which at a minimum document at least 99 percent (by weight) of the ingredients used to make the building product or building material, and
2) Are sourced from product manufacturers with independent third party verification of their supply chain that at a minimum verifies:

a) Processes are in place to communicate and transparently prioritize chemical ingredients along the supply chain according to available hazard, exposure and use information to identify those that require more detailed evaluation
b) Processes are in place to identify, document, and communicate information on health, safety and environmental characteristics of chemical ingredients
c) Processes are in place to implement measures to manage the health, safety and environmental hazard and risk of chemical ingredients
d) Processes are in place to optimize health, safety and environmental impacts when designing and improving chemical ingredients
e) Processes are in place to communicate, receive and evaluate chemical ingredient safety and stewardship information along the supply chain

f) Safety and stewardship information about the chemical ingredients is publicly available from all points along the supply chain.

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.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

B. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Certified Wood [if wood products are required to be certified for LEED]: Lumber and plywood shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."

B. 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.

Retain only first option in first subparagraph below if authorities having jurisdiction require grade stamps on all materials.

2. For exposed lumber indicated to receive a stained or natural finish, omit grade stamp and provide certificates of grade compliance issued by grading agency.

In DOC PS 20, dressed sizes of green lumber are larger than dry lumber.

3. 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.

Revise subparagraph below if rough lumber is acceptable for all work.

4. Provide dressed lumber, S4S, unless otherwise indicated.

Retain one of five options in "Maximum Moisture Content of Lumber" Paragraph below, or delete paragraph if green lumber is acceptable in all thicknesses. Verify availability of lumber with 15 percent maximum moisture content before retaining. Lumber more than 2 inches nominal (38 mm actual) in thickness is often shipped green. See Evaluations.

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

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

In Paragraph below select first option for above ground, exterior use or choose second option for wood in contact with the ground.

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category **[UC3B][UC4]**, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft (4.0 kg/cu m) retention.

See Evaluations in Section 061000 "Rough Carpentry" for information about treatment chemicals.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

Retain subparagraph below for exposed framing if considered necessary.

2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Kiln-dry plywood and OSB materials to a maximum moisture content of 15 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

Retain only first option in subparagraph below if authorities having jurisdiction require quality mark on all materials.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.

Retain first option in "Application" Paragraph below and delete subparagraphs if total treatment is required; otherwise, retain second option and appropriate subparagraphs.

D. Application: Treat all miscellaneous carpentry unless otherwise indicated.

Retain first subparagraph below if Project includes wood adjacent to roofing or waterproofing.

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
4. Wood framing members that are less than 18 inches (460 mm) above the ground in crawl spaces or unexcavated areas.
5. Wood floor plates that are installed over concrete slabs-on-grade.

Insert other items that require treatment but are not likely to be indicated on Drawings.

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

1. Use treatment that does not promote corrosion of metal fasteners.

Exterior type is suitable for both exterior and interior applications. Interior type is only for interior applications.

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: AWPA U1, Use Category UCFA, Commodity Specification H, low temperature (low hygroscopic) type, chemically treated and pressure impregnated. Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.

Retain option in "Design Value Adjustment Factors" Subparagraph below if applicable. Revise description of locations to suit Project. Verify adjustment factors with Project's structural engineer.

Retain second option in first paragraph below and delete first option if required for plywood backing panels.

C. Kiln-dry lumber after treatment to a maximum moisture content of [19][15] percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.

Retain only first option in subparagraph below if authorities having jurisdiction require classification marking on all materials.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.

Delete or revise first paragraph below if no exposed framing or if staining will hide colorants.

E. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not bleed through, contain colorants, or otherwise adversely affect finishes.

Retain first option in "Application" Paragraph below and delete subparagraphs if all wood is required to be fire-retardant treated; otherwise, retain second option and appropriate subparagraphs.

F. Application: Treat all miscellaneous carpentry unless otherwise indicated. [**items indicated on Drawings, and the following:**]

1. Framing for raised platforms.
2. Concealed blocking.
3. Roof framing and blocking.
4. Wood cants, nailers, curbs, equipment support bases, blocking, and similar members in connection with roofing.
5. Plywood backing panels.

Insert other items that require treatment but are not likely to be indicated on Drawings.

2.4 DIMENSION LUMBER FRAMING

"Non-Load-Bearing Interior Partitions" Paragraph below refers to non-load-bearing construction. Designate load-bearing walls on Drawings if retaining this distinction. If only non-load-bearing framing is included, change title of paragraph to "Framing" and delete "Other Framing" Paragraph below.

Retain one of three options for grade below. Construction and No. 2 grades allow fewer defects than Stud, Standard, and No. 3 grades.

A. Sizes: Nominal sizes as indicated on drawings, S4S.

Revise list below; usually retain all species that meet requirements except those unavailable in Project's location. Species groups are listed in order of decreasing modulus of elasticity. Some species groups below overlap others; delete subparagraphs as necessary to eliminate duplication.

If retaining "Other Framing" Paragraph below, retain one of three options for grade or revise to suit Project; verify with structural requirements.

B. Moisture Content: S-dry or MC19.

C. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
1. Lumber: S4S, No. 2 or Standard Grade.
2. Boards: Standard or No. 3.

Revise list below; usually retain all species that meet requirements except those unavailable in Project's location. Species groups are listed in order of decreasing strength (extreme fiber in bending).

2.5 CONSTRUCTION PANELS

A. Underlayment: APA Underlayment; plywood, Exterior exposure class, ½ inch (12.5 mm) thick.

B. Sheathing: Gypsum, complying with requirements of ASTM C 1396/C 1396M for gypsum sheathing, Type X fire-resistant, V-shaped long edges, ½ inch (12.5 mm) thick.

C. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; ¾ inch (19 mm) thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E 84.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate [**furring,**] nailers, blocking, [**grounds,**]and similar supports to comply with requirements for attaching other construction.

B. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

C. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

D. 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.**]

E. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

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, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches (406 mm) o.c.

H. Provide fire blocking in furred spaces, stud spaces, and other 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.
2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches (2438 mm) o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal (38-mm actual) thickness.
3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. (9.3 sq. m) and to solidly fill space below partitions.

Usually show and describe fire blocking for cornices and trim on Drawings.

4. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet (6 m) o.c.

I. 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.

J. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

K. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

If retaining first subparagraph below, verify that this is acceptable to authorities having jurisdiction. Fasteners covered by NES NER-272 are manufactured by member companies of the International Staple, Nail and Tool Association.

1. NES NER-272 for power-driven fasteners.

Retain one of two subparagraphs below, with or without subparagraph above, as required to comply with requirements of Project and local codes.

2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

Revise paragraph below to include other kinds of nails if required.

L. 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. For fasteners in contact with preservative-treated wood use Type G185 galvanized steel **<304 stainless steel> <316 stainless steel>**
2. For fasteners located on the exterior use Type 304 stainless steel **<316 stainless steel>**

M. Screws for Fastening to Metal Framing: [**ASTM C1002**] [**ASTM C954**], length as recommended by screw manufacturer for material being fastened.

3.2 WOOD [**GROUND,**] [**SLEEPER,**] BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for [**screeding or**] 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.

Retain paragraph below for conventional, not veneer, plaster.

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.

Insert other specific requirements as needed for work.

3.3 WOOD FURRING INSTALLATION

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

Revise "Furring to Receive Plywood or Hardboard Paneling" Paragraph below if closer spacing is required for material fastened.

B. Furring to Receive Plywood or Hardboard Paneling: Install 1-by-3-inch nominal-size (19-by-63-mm actual-size) furring [**horizontally**] [**and**] [**vertically**] at [**24 inches (610 mm)**] [**600 mm**] o.c.

Revise "Furring to Receive (Gypsum Board) (Plaster Lath)" Paragraph below if closer spacing is required for material fastened.

C. Furring to Receive [**Gypsum Board**] [**Plaster Lath**]: Install 1-by-2-inch nominal-size (19-by-38-mm actual-size) furring vertically at [**16 inches (406 mm)**] [**400 mm**] o.c.

3.4 PROTECTION

Delete this article if site-applied boron treatment is specified in Section 31 3116 "Termite Control."

Retain one of two paragraphs below if borate treatment of wood that has become wet is used to help prevent mold and mildew.

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

END OF SECTION 06 1053