

SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Blocking and nailers for roofing system and related metal flashings.
2. Preservative and fire resistive treatment.
3. Concealed blocking behind wall mounted items.
4. Structural panel products.
5. Non-structural panel products including the following:
 - a. Backing for electrical and telephone equipment.
 - b. Panels concealed within gypsum board and metal stud partitions.
 - c. Panels used as finish material; walls, ceilings, wainscots, and bases.

B. Related Requirements:

1. Section 07240 - Exterior Insulation and Finish System: Finish over plywood sheathing at exterior signage.
2. Section 07620 - Sheet Metal Flashing And Trim

1.2 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

B. American Lumber Standards Committee (ALSC):

1. Softwood Lumber Standards.

C. American Plywood Association (APA):

1. Grades and Standards.

D. ASTM International (ASTM):

1. ASTM A 123/A - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
2. ASTM A 153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
3. ASTM A 307 - Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
4. ASTM A 653 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
5. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.
6. ASTM B 117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
7. ASTM E 1333 - Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using a Large Chamber.

E. American Society of Mechanical Engineers (ASME):

1. ASME B18.6.1 - Wood Screws (Inch Series)

F. American Wood Protection Association (AWPA):

1. AWPA M4 - Care of Preservative Treated Wood Products.
2. AWPA U1 - User Specification for Treated Wood.

G. Department of Commerce (National Institute of Standards and Technology) - Product Standard (DOC):

1. DOC PS 1 - Construction and Industrial Plywood.
2. DOC PS 2 - Performance Standard for Wood Based Structural Use Panels.
3. DOC PS 20 - American Softwood Lumber Standard.

H. Southern Pine Inspection Bureau (SPIB):

1. Grading Rules.

I. Western Wood Products Association (WWPA):

1. Western Lumber Grading Rules.

J. Underwriters' Laboratories (UL):

1. UL FR-S Classification - Fire Retardant Treated Wood with Flame Spread Ratings of 25 or less in accordance with ASTM E84.

2. UL 723 - Test for Surface Burning Characteristics of Building Materials.

1.3 QUALITY ASSURANCE

A. Lumber Grading Agency: Lumber to be grade stamped by an agency certified by the Board of Review of the American Lumber Standards Committee (ALSC).

B. Plywood Grading Agency: Certified by APA.

C. Regulatory Requirements: Conform to applicable codes for fire retardant treatment of wood surfaces for flame/smoke ratings.

D. Composite Wood Products: Hardwood plywood, particleboard, and medium density fiberboard composite wood products specified herein for exterior or interior applications shall meet the requirements for formaldehyde as specified by the California Air Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E 1333, and Chap 5 of the CALGreen requirements.

1.4 DELIVERY, STORAGE AND HANDLING

A. Transport, handle, store, and protect products in compliance with the requirements of Section 01600.

B. Provide proper facilities for handling and storage of materials to prevent damage to edges, ends and surfaces.

C. Keep materials dry. Stack materials off ground a minimum of 12 inches or if on concrete slab-on-grade a minimum of 1-1/2 inches, fully protected from weather. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 MATERIALS AND PRODUCTS

A. Lumber: DOC PS 20; S4S. Maximum of 19 percent moisture content, surfaced dry, No. 2 any species graded under WWPA grading rules or No. 3 Grade Southern Pine graded under SPIB grading rules.

B. Plywood Backing Panels: DOC PS 1, Exposure 1, Grade C Plugged veneer, fire retardant treated, thickness indicated but not less than 1/2 inch nominal thickness.

C. Nonstructural Panel: DOC PS 1 or PS 2, fire retardant treated plywood.

1. Type 1 (Interior): Grade C-D Plugged veneer, Exposure I, locations and thickness indicated on the Drawings.

2. Type 2 (Exterior): Grade B-B veneer, Exterior, locations and thickness as indicated on the Drawings.

D. Structural Panels: DOC PS 1 or PS 2.

1. Plywood Wall Sheathing: Grade B-B veneer, Exterior for exterior, Exposure 1 for interior, span rating required to support spacing indicated on Drawings. Thickness: Indicated on Drawings.

2. Plywood Roof Sheathing: Grade B-B veneer, Exposure 1, Structural I, span rating as required to suit support spacing indicated on Drawings. Thickness: As indicated on Drawings.

- E. High Density Wood Fiber Panel Products: Provide one of the following panels with span rating as required to suit support spacing indicated on drawings. Thickness as indicated on drawings.
 - 1. EnergyGuard High Fiberboard, by GAF, (800) 766-3411.
 - 2. Huebert Fiberboard Roof Insulation, by Huebert Brothers Products, LLC; Booneville, MO (816) 882-2704.

2.2 FASTENERS

- A. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity: Comply with the treated lumber manufacturer's recommendations for fasteners and metal components in contact with treated lumber.
 - 1. Fasteners: ASTM A 153, class D for hot dip galvanized fasteners or type 304 or type 316 stainless steel.
 - 2. Other components: ASTM A 653, G-185, with minimum of 1.85 ounces of zinc coating per square foot coverage or type 304 or type 316 stainless steel.
- B. At no time shall any galvanized metal, stainless steel, or other dissimilar metals be in contact with one another.
- C. Nails, Brads and Staples:
 - 1. ASTM F 1667 Galvanized for exterior locations and high humidity areas, and for treated wood
 - 2. ASTM A123 plain finish for other interior locations.
 - 3. Size and type to suit application, unless otherwise noted.
- D. Bolts, Nuts, Washers, and Lag Screws: ASTM A307, Medium carbon steel; size and type to suit application; galvanized for exterior locations, high humidity areas, and treated wood; plain finish for other interior locations, of size and type to suit application, unless otherwise noted.
- E. Wood Screws: ASME B18.6.1
- F. Toggle Bolt Fasteners: For anchorage of non-structural items to hollow masonry.
- G. Expansion Shield Fasteners: For anchorage of non-structural items to solid masonry and concrete.
- H. Powder or Pneumatically Actuated Fasteners: For anchorage of non-structural items to steel.
- I. Fasteners for Wood and Plywood to Light Gage Metal Framing and Metal Deck (up to 10 gage, 0.1345 inch): Self-drilling flat head wood-to-metal screws.
 - 1. Manufacturers:
 - a. Hilti, Tulsa, OK (800) 879-6000.
 - b. ITW Buildex, Itasca, IL (800) 323-0720.
 - 2. Wood and Plywood Up to 3/4 Inch Thick:
 - a. Hilti: S-WD 8-18 x 1-15/16 PFH #3 Black Phosphated.
 - b. ITW: Traxx 10-16 #3 point.
 - c. Pre-drill wood if wood thickness is greater than 1/2 inch or use heavier fastener specified below.
 - 3. Wood less than or equal to 1-1/8 inch thickness to 18 Gage (0.0478 inch) and 20 Gage (0.0359 inch) Metal:
 - a. Hilti: S-WD 10-24 x 1-1/2 PWH #3 wafer head screw.
 - b. ITW: Traxx 10-16 #3 point.
 - c. Pre-drill wood if wood thickness is greater than 1/2 inch.
 - 4. Wood less than or equal to 1-3/4 inch thickness to 16 Gage (0.598 inch) and Heavier Metal (less than or equal to 0.232 inches):
 - a. Hilti: S-WW 12-24 x 2-1/2 PFH #4 Wings.
 - b. ITW: Traxx 12-24 #4 Point with Wings.
 - 5. Wood less than or equal to 2-inch thickness to 16 Gage (0.598 inch) and heavier metal (less than or equal to 1/4 inch):
 - a. Hilti: S-WW 1/4-20 x 2-3/4 PFH #4 Wings.
- J. 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 with wafer heads or reamer wings as specified above, length as shown or as recommended by screw manufacturer for material being fastened.

- K. Fasteners for Structural Wood Members to Solid Grouted Masonry: Adhesive anchors, size and length as indicated on Drawings.
 - 1. Anchor adhesive: Cartridge type two-component adhesive for embedding anchors.
 - a. HIT HY-150 by Hilti Corp.
 - b. Epcon System, Ceramic 6 by ITW Ramset/Red Head
 - c. Epoxy-Tie SET by Simson Strong Tie Co. Inc., Pleasanton, CA (800) 925-5099.
 - d. Substitutions: Not permitted.

- L. Fasteners for Non-Structural Wood Members to Masonry: Masonry screw anchor with Phillips or Torx flat head, size and length as shown on the drawings.
 - 1. Hilti: Kwik-Con II fastener.
 - 2. ITW: Tapcon masonry anchor.

- M. Alternate Manufacturers: Subject to compliance with project requirements, fasteners by alternate manufacturers of equal types to those specified may be provided, except where substitutions are specifically prohibited.

2.3 WOOD TREATMENT

- A. Preservative Pressure Treated Lumber Treatment:
 - 1. Products and Manufacturers: Provide any of the following:
 - a. Wolman CCA, by Arch Wood Protection, Smyrna, GA, (770) 801-6600.
 - b. CCA Pressure Treatment by Hoover Treated Wood Products Inc., Thomson, GA, (800) .832-9663.
 - c. SupaTimber, by Viance, Charlotte, NC, (800) 421-8661.
 - 2. Treat lumber in accordance with AWWA U1; Use Category UC2 for interior construction not in contact with the ground; Use Category UC3b for exterior construction not in contact with the ground; and Use Category UC4a for items in contact with the ground.
 - 3. Preservative Chemicals shall be acceptable to Authorities Having Jurisdiction and contain no arsenic or chromium where prohibited.
 - 4. Kiln dry lumber after treatment to 15-19 percent moisture content. Do not use warped material or materials that do not comply with requirements for untreated material. Material to be painted or stained shall have knots and pitch streaks sealed as with untreated wood.
 - 5. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review and acceptable to Authorities Having Jurisdiction.

- B. Field-Applied Lumber Preservative:
 - 1. Provide the following:
 - a. Inorganic boron.
 - b. Copper naphthenate.

- C. Fire Retardant Treatment:
 - 1. Products and Manufacturers: Provide any of the following:
 - a. Dricon FRT (exterior and interior), by Arch Wood Protection, Smyrna, GA, (770) 801-6600.
 - b. Exterior X (exterior) and Pyro-Guard (interior) by Hoover Treated Wood Products, Inc.; Thomson, GA; (800)-832-9663.
 - c. D-Blaze (interior) by Viance, Charlotte, NC; (800) 421-8661.
 - 2. Identify fire retardant treated wood with appropriate classification marking of testing and inspecting agency acceptable to Authorities Having Jurisdiction.
 - 3. 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.
 - 4. Kiln dry lumber after treatment, to an average moisture content of 19 percent or less.
 - 5. Kiln dry plywood after treatment, to an average moisture content of 15 percent or less.
 - 6. Chemicals used to treat material shall be free of halogens, sulfates, ammonium phosphate and formaldehyde.
 - 7. Treatment material shall provide protection against termites and fungal decay and shall be registered for use as a wood preservative by the U. S. Environmental Protection Agency.

- D. Wood Requiring Treatment:

1. Lumber, Preservative Treated:
 - a. Nailers, blocking, stripping, and similar items in conjunction with roofing, flashing, and other construction.
 - b. Sills, blocking, furring, stripping, and similar items in contact with masonry or concrete.
2. Lumber, Fire Retardant Treated:
 - a. Interior partition framing, furring, blocking, nailers, and miscellaneous exposed wood at roofing system and wood exposed within the roof/ceiling assembly.
3. Interior Plywood, Fire Retardant Treated:
 - a. Plywood used as finish material, walls, ceilings, wainscots and bases.
 - b. Plywood backing for electrical and telephone equipment.
 - c. Plywood concealed within gypsum board and metal stud partitions.
 - d. Non-structural plywood wall sheathing at concealed spaces.
 - e. Exposed to sight plywood surfaces.
4. Exterior Plywood, Fire Retardant Treated:
 - a. Plywood used as sheathing, substrate, or parapet cap assembly.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive rough carpentry work and verify following:
 1. That installation of building components to receive rough carpentry work is complete.
 2. That surfaces are satisfactory to receive work.
 3. That spacing, direction and details of supports are correct to accommodate installation of blocking, backing, stripping, furring and nailing strips.

3.2 SITE TREATMENT OF WOOD MATERIALS

- A. Wood Treatment at Site: Comply with AWP A M4 for applying field treatment to cut surfaces of preservative treated lumber.
 1. Use inorganic boron for items continuously protected from liquid water.
 2. Use copper naphthenate for items not continuously protected from liquid water.

3.3 INSTALLATION

- 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, grounds, and similar supports to comply with requirements for attaching other construction.
 1. Construct members of continuous pieces of longest possible lengths.
 2. Do not splice structural members between supports, unless otherwise indicated.
- B. Provide blocking and framing indicated and necessary 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 o.c.
- C. Secure members in place with specified fastener. 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. Do not countersink nail heads unless otherwise indicated.
- D. Wood Ground, Sleeper, Blocking, and Nailer: 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.
 1. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.
 2. Recess heads of fasteners below surface of wood members.

- E. Wood Furring: Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
- F. Install firestopping complying with Section 07840 in concealed spaces with wood blocking, horizontally and vertically in accordance with drawings, minimum 2 inches thick where space is not blocked by framing members.
- G. Fasteners: Install fasteners with manufacturer's recommended power tool for each type of fastener.

3.4 PROTECTION

- A. Protect rough carpentry from weather throughout construction period.

END OF SECTION