

SECTION 061316 – WOOD POST FRAME BUILDINGS

PART 1 - GENERAL

1.1 M.S.U. ISSUES

- A. Specifications shall be considered minimum standards to be met by the contractor.
- B. Drawings furnished are schematic and indicate the intent of the owner as to the type of building construction desired. The dimensions shown on the general drawings shall not be changed without approval of the owner.
- C. The contractor will be expected to furnish sand and final grade.
- D. Before the contract is awarded, but within 14 days after bid opening, the successful bidder shall submit to the owner for evaluation a complete set of plans and specifications for the building he has proposed to construct for the bid price. This submittal shall be designed in accordance with the latest Federal, State and Local building and Accessibility Codes and bear the seal of an architect or engineer licensed to practice in the State of Michigan.
- E. Assume 2500 psf soil bearing for bidding purposes. Final design soil bearing capacity will be supplied by M.S.U.
- F. Roof design load shall be 42 psf (minimum 35 psf live load).
- G. Storage deck minimum design load shall be 125 psi.
- H. Wood framing shall be in accordance with the formulas published in the current edition of The National Design Specification for Wood Construction.
- I. It the intent of MSU that all wood post frame buildings will comply with LEED™ NC 2.2 Credit Requirements MR Credit 4.1: Low-Emitting Materials: Adhesives and Sealants. Adhesives.
- J. SUMMARY
- K. This Section includes construction of post frame buildings.
- L. Related Sections include the following:
 - 1. Division 08 Section STANDARD STEEL DOORS AND FRAMES for swinging doors.
 - 2. Division 08 Section SECTIONAL OVERHEAD DOORS for overhead doors.

1.2 SUBMITTALS

- A. Product Data: For structural wood posts and lumber for splashboards.

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. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
 3. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- B. Certificates of Inspection: Issued by lumber grading agency for exposed lumber not marked with grade stamp.
- C. Warranty: Treated structural posts: 40 years, steel: 10 years, all work: one year.
- D. Submit printed VOC statement and product data for Adhesives in accordance with the General Administrative Requirements of the MSU Construction Standards 01300.1.2. Adhesives maximum VOC content 70 g/l when calculated according to South Coast Air Quality Management District (SCAQMD) Rule #1168, effective July 1, 2005 and amended January 7, 2005:
1. Wood Subfloor: Maximum VOC 50 g/l
 2. Wood to Wood Non-structural: Maximum VOC 30 g/l
 3. Structural Wood Member Adhesive: Maximum VOC 140 g/l
 4. Multipurpose Construction Adhesives: Maximum VOC 70 g/l

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Schedule delivery of materials to avoid extended on-site storage and to avoid delaying the Work.
- B. Store materials under cover and protected from weather and contact with damp or wet surfaces. Provide for air circulation within and around stacks and under temporary coverings.

PART 2 - PRODUCTS

2.1 GENERAL

- A. General: Comply with DOC PS 20 and grading rules of lumber grading agencies certified by American Lumber Standards Committee Board of Review, as applicable.
1. Factory mark each item of lumber with grade stamp of grading agency.
 2. For exposed lumber indicated to receive a stained or natural finish, apply grade stamps to surfaces that will not be exposed to view or omit grade stamps and provide certificates of grade compliance issued by grading agency.
- B. Preservative Treatment:

1. Pressure treat structural wood posts and splashboards with waterborne preservative to comply with AWPA C16.
 2. Preservative Chemicals: Acceptable to authorities having jurisdiction and the following:
 - a. Chromated copper arsenate (CCA).
 3. Use process that includes water-repellent treatment.
 4. After treatment, redry posts and splashboard lumber to 19 percent maximum moisture content.
 5. M.S.U. may require, at its option, that all posts be tested by Timber Products Inspection, P.O. Box 9119, Conyers, Georgia 30207, (770) 922-8000, D.M. Dilbeck, Manager AWPB Division or other approved testing agency for test of preservation penetration and retention in accordance with AWPA Standard C-2. If tests indicate that all posts meet the specification, the cost of the tests shall be paid by M.S.U. If the tests indicate insufficient pressure treating, the cost of the tests, replacement material and retesting shall be borne by the contractor.
- C. Wood Framing: Light framing lumber (2" to 4" thick and not more than 4" in width), any species and grade that, for moisture content provided, complies with required structural properties.
1. Allowable Stress Ratings for 12 inches Depth: Fb 1150 psi and E 1,400,000 psi.
- D. Moisture Content: Provide lumber with 19 percent maximum moisture content at time of dressing.
- E. Dressing: Provide dressed lumber (S4S)] unless otherwise indicated.
- F. End Sealer: Manufacturer's standard, transparent, colorless wood sealer that is effective in retarding the transmission of moisture at cross-grain cuts and is compatible with indicated finish.
- G. Penetrating Sealer: Manufacturer's standard, transparent, penetrating wood sealer that is compatible with indicated finish.

2.2 STRUCTURAL WOOD POSTS

- A. Species: Southern Yellow Pine, pressure treated No. 2 or better.
- B. Straight, free from checks and large knots.
- C. Posts will be stamped with AWPB Quality Mark LP-22, for ground contact or FDN mark for wood foundations.

2.3 WOODEN TRUSSES

- A. Comply with ANSI/TPI 1-2002, "National Design Standard for Metal Plate Constructed Wood Truss Construction.
- B. Maximum truss spacing 4'-0" on center.

2.4 ROOFING

- A. Preformed and prefinished steel with storm gutters and downspouts (5" minimum). Panels will be a minimum 26-gauge thickness. Main ribs 9" on center and 3/4" high, matching sidewall steel style. Color will be white unless otherwise specified. Continuous ridge vents and vented soffit are required.
- B. Provide and install galvanized hardware cloth, maximum opening 1/2", at inside face of eave to prevent birds from nesting in the eave.
- C. If required, post frame buildings will have a complete master label lightning protection system installed.

2.5 EXTERIOR SIDEWALLS

- A. Wall panels will be preformed and prefinished steel, 29-gauge thickness, to withstand 20 psf wind load. Main ribs shall be 9" on center and 3/4" high, matching roof steel style. Install to provide 6" between bottom of steel and grade level. Color will be white unless otherwise specified.

2.6 EXTERIOR TRIM

- A. Fascia, flashing and trim pieces as specified by the manufacturer of siding and roofing to provide a complete project. Eave to be 16" wide on sidewalls and 16" wide on gable ends, to be vented according to good engineering standards. Color will be white unless otherwise specified.

2.7 WINDOWS

- A. Exterior windows will be vinyl thermo-break with insulating glass and screens. They will be white Wojan Window and Door Corporation M85 Series or pre-approved equal.
- B. Translucent panels used as roof lights or wall lights will be white.

2.8 DOORS

- A. For swinging doors, see Section 081113 HOLLOW METAL DOORS AND FRAMES.
- B. For overhead sectional doors see Section 083613 SECTIONAL DOORS.
- C. Sliding doors shall be constructed of 2"X4" and 2"X6" No. 2 or better Spruce/ Pine/Fir. Doors shall be 3/2" thick (2"X4" on edge) with edge verticals 5" wide (two 2"X4" in an L-shape formation). The top rail shall be constructed with two 2"X6" spaced with a 1/2 "X5 1/2" strip of plywood. The bottom rail shall have a 2"X4" nailed 6" o.c. to a 16 gauge G90 C-shaped guide rail. The guide rail will interlock on the center door guide and on an additional guide rail for continuous support along the side or end of the building. Latching and locking hardware consistent with 2.8 D. below shall be provided to secure the door in the fully open and fully closed positions. The door shall be supported by National Mfg. Co. 16 gauge trolley rail for

door panels up to 10'6" wide, and hi-tensile galvanized 16-gauge trolley rail for door panels greater than 10'6" wide. Sliding door panels shall be suspended with National Mfg. Co. galvanized trolley hangers with hardened steel roller bearings.

- D. Locksets shall be by Corbin Russwin, prepared to receive a Best cylinder. The Best cylinder and keying will be furnished and installed by M.S.U.
- E. Provide four, 6 inch round by 8 foot long steel guard posts (bollards) at each overhead or sliding door opening. They will be centered on each edge of the door opening, inside and outside, set in to project four feet above grade, and filled with concrete.

2.9 EXTERIOR CONCRETE

- A. Concrete aprons with a minimum of 42" deep frost footings will be located at each overhead, sliding, and pedestrian door entrance. Pedestrian door aprons shall be a minimum of 60"X72"X5" concrete pad with a minimum 36" clear area on the latch side of the door. Overhead and sliding door aprons shall be a minimum of 4'X5" concrete pad the width of the door opening. Concrete aprons shall have a slip resistant finish.
- B. As part of the concrete apron, a 0.75"-1.5" lip, with imbedded angle iron, is to be installed to allow full clearance over the center guide. If no center guide is required (full door), a similar lip with imbedded angle iron is to be installed for door support and weather deterrence.

2.10 BUILDING INTERIOR

- A. If interior walls are finished they shall be finished with the same material as the exterior walls.
- B. If required, interior ceilings will be preformed and pre-finished steel, 29 gauge thickness. Main ribs shall be 9" on center and 3/4" high, matching roof steel style. Color will be white unless otherwise specified. Perforated steel panels will be provided if needed for acoustical purposes.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Erect structure true and plumb. Provide temporary bracing as needed to maintain lines and levels until permanent supporting members are in place. Structural wood posts will be embedded with foundation, depth and compaction sufficient for design and wind load specified.
- B. If any part of building is finished to ground level, splashboard shall be utilized, treated in accordance with American Wood Preservers Institute (AWPI) standard C-4. The splashboard will be a minimum of three tongue and groove treated 2" X 6", with a minimum of six inches below grade. Two 2" X 10" or two 2" X 12" may be used.
- C. Cutting: Avoid extra cutting after fabrication. Where field fitting is unavoidable, comply with requirements for shop fabrication.

1. Where preservative-treated members must be cut during erection, apply a field-treatment preservative to comply with AWPA M4.
 - a. Use inorganic boron treatment for members not in contact with the ground and continuously protected from liquid water.
 - b. Use copper naphthenate treatment for members in contact with the ground or not continuously protected from liquid water.

END OF SECTION 061316