

**XCEL SPORTS COMPLEX  
FRANKLIN, WISCONSIN  
SECTION 061000 - ROUGH CARPENTRY**

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**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Sheathing.
  - 2. Dimensional wood framing.
  - 3. Glued-laminated beams.
  - 4. Blocking, nailers, and curbing.
  - 5. Plywood terminal back boards.
- B. Related Sections:
  - 1. 054000 - Cold-Formed Metal Framing: Structural lightgauge metal framing.
  - 2. 062000 – Finish Carpentry
  - 3. 076200 - Sheet Metal Flashing and Trim.
  - 4. 092200 – Lightgauge Metal Support Framing: Support framing; metal backing.
  - 5. 092900 - Gypsum Board:
- C. Drawings, the provisions of the Agreement, the General Conditions, and Division 1 specification sections apply to all work of this Section.
- D. Substitutions: Substitutions will be considered only under the terms and conditions of Section 016000.

**1.2 REFERENCES**

- A. American Institute of Timber Construction (AITC)
- B. American National Standards Institute (ANSI): 190.1 - Structural Glued Laminated Timber.
- C. American Plywood Association (APA)
- D. American Society for Testing and Materials (ASTM):
  - 1. D2898 - Test Method for Accelerated Weathering of Fire-Retardant Treated Wood for Fire Testing.
  - 2. E84 - Test Method for Surface Burning Characteristics of Building Materials.
- E. American Wood Preservers' Association: Book of Standards (AWPA).
- F. National Lumber Grading Authority of Canada (NLGA).
- G. Product Standard (PS): PS-20 - American Softwood Lumber Standard.
- H. Southern Pine Inspection Bureau (SPIB).
- I. West Coast Lumber Inspection Bureau (WCLB): Standard Grading Rules for West Coast Lumber.
- J. Western Wood Products Association (WWPA).

**1.3 SYSTEM DESCRIPTION**

- A. Structural Requirements for Fabricated Wood Structural Members: Design for dead loads and live loads as indicated on the structural drawings, with deflection limited to 1/360 the span for floor loads and 1/240 the span for roof loads.

**1.4 SUBMITTALS**

- A. Make submittals in accordance with Section 013300.
- B. Product Data: Submit complete technical and product data on the following:
  - 1. Preservative and fire retardant wood treatments.
  - 2. Framing and sheathing accessories.
  - 3. Fabricated structural wood members.

**1.5 QUALITY ASSURANCE**

- A. Regulatory Requirements: Work shall conform to the requirements of the currently enforced International Building Code as adopted by the jurisdiction.

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- B. Fabricated Wood Structural Member Manufacturers Qualifications:
  - 1. For each type of fabricated structural wood member, use company specializing in the manufacture of the type of structural wood member with a minimum of three years experience.
  - 2. Glued Laminated Wood Structural Member Manufacturer: Certified by the AITC or APA-EWS (American Wood Systems), in accordance with ANSI A190.1.
- C. Glued laminated structural units shall conform to Voluntary Product Standards PS 56 "Structural Glue Laminated Timber" and AITC 117 "Standard Specifications for Structural Glue-Laminated Timber of Softwood Species".
- D. Design fabricated wood structural members under direct supervision of Professional Engineer experienced in structural framing design registered in State of Wisconsin.

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Store and protect products under provisions of Section 016000.
- B. Glued Laminated Wood Members:
  - 1. Protective Wrapping: Industrial grade members may be shipped unwrapped. Individually wrap architectural grade members. Maintain protection until immediately prior to installation.
  - 2. Use padded, non-marring slings when handling architectural grade members.
  - 3. Prevent glued laminated members from becoming wet.

**PART 2 - PRODUCTS**

**2.1 DIMENSION LUMBER**

- A. Lumber shall be manufactured in accordance with PS 20, and shall be stamped and graded in accordance with WWP, WCLB, NLGA, or SPIB grading rules.
- B. Moisture Content: Kiln dried to 19% maximum moisture content, except for material whose least dimension is 4 inches thick or greater.
- C. Species: Hem-Fir, Spruce-Pine-Fir (SPF), or Douglas Fir Larch, unless indicated or specified otherwise.
- D. Structural Lumber Grades: As indicated on the Structural Drawings.
- E. Architectural Lumber Grades: Unexposed non-structural wood framing and blocking indicated on the Architectural Drawings shall be graded as follows:
  - 1. Non-Structural Framing (2" to 4" thick, 2" to 6" wide): "Construction - Light Framing," "Stud," or better.
  - 2. Blocking and Nailers: "Utility - Light Framing," or better.

**2.2 PANEL MATERIALS**

- A. Miscellaneous Concealed Sheathing: APA Rated Sheathing; Structural I; CD grade; Exterior; plywood, unless approved otherwise; thicknesses as indicated.
- B. Exposed Sheathing: APA Rated Sheathing; Structural I; BC grade; Exterior; plywood, unless approved otherwise; thicknesses as indicated.
- C. Terminal Backboards: APA AC grade exterior; fire retardant treated.

**2.3 FABRICATED WOOD STRUCTURAL MEMBERS**

- A. Glued Laminated Wood Members: As indicated on the **Structural** Drawings.
  - 1. Appearance Grades: Architectural grade.
  - 2. Fabricate glue laminated structural members in accordance with AITC Architectural grade.
  - 3. Fabricate members to the dimensions, combinations, and cambers indicated.
- B. General Fabrication Requirements for Fabricated Wood Structural Members:
  - 1. Verify dimensions and site conditions prior to fabrication.
  - 2. Fabricate to meet the structural requirements specified.

**4. Glulam strength: 24F-E10 or 24F-V11.**

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## **2.4 ACCESSORIES**

- A. Fasteners:
  - 1. Hot-dipped galvanized steel for exterior, high humidity, and fire treated wood locations.
  - 2. For Use With Preservative Treated Wood: 300 Series stainless steel.
  - 3. Use ring shank nails at floor sheathing.
  - 4. Screws: Self tapping; countersunk or low profile head.
- B. Metal Connectors: Simpson Company, Silver Metal Products, Inc, USP Structural Connectors, or approved; types as indicated on the Drawings; minimum G-185 galvanized coating.
- C. Construction Adhesive: One of the following:
  - 1. BASF Construction Chemicals LLC (Shakopee, MN 952-496-6091); "CX-400".
  - 2. Henkel Consumer Adhesives/OSI Sealants, Inc. (Mentor, OH 440-255-8900); "PL 400 Heavy Duty Construction Adhesive".
  - 3. GE/Momentive Performance Materials, Inc., (Euless, TX 817-359-1450); "GE 400 Plus."
  - 4. Other product meeting the requirements of AFG-01.
- D. Sill Gasket: Closed cell polyethylene foam, glass fiber strips, or approved; continuous rolls; width of sill plate.

## **2.5 WOOD TREATMENT**

- A. Wood Preservative (Pressure Treatment):
  - 1. Preservative treat all exterior lumber, including roofing nailers, curbs and other wood in contact with concrete, masonry, and moist conditions.
  - 2. For above ground use, use AWWA certified Ammonium Copper Quaternium (ACQ) or Copper Hydroxide Sodium Dimethyldithiocarbamate (CDDC) waterborne preservative with 0.25 pounds per cubic foot of wood retention.
  - 3. For ground contact use, use AWWA Treatment C-22 using CCA waterborne preservative with 0.40 pounds per cubic foot of wood retention.
  - 4. Treated lumber shall be kiln dried to a maximum moisture content of 19%; treated plywood shall be kiln dried to a maximum moisture content of 15%.
  - 5. Treated lumber shall bear the quality stamp of an inspection agency approved by the jurisdictional code authorities.
- B. Fire Retardant Treatments:
  - 1. Fire retardant treat all interior concealed lumber and plywood, and other wood as indicated or specified.
  - 2. All fire retardant treated wood materials shall bear a UL "FR-S" label, or a label from an approved inspection agency certifying that the material meets the requirements of AWWA C-20 Type A for lumber and AWWA C-27 Type A for plywood.
  - 3. Treated lumber shall be kiln dried to a maximum moisture content of 19%; treated plywood shall be kiln dried to a maximum moisture content of 15%.
  - 4. Approved Products:
    - a. Interior Fireproofing: Hickson Corporation "Dricon", Hoover Treated Wood Products "Pyro-guard," or Osmose Wood Preserving Co. of America, Inc. "Flame Proof LHC."

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this Section may properly commence. Notify the Architect in writing of conditions detrimental to the proper and timely completion of the work.
- B. Do not begin installation until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

### **3.2 FRAMING**

- A. Erect as indicated.

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- B. Erect wood framing members level and plumb unless indicated otherwise.
- C. Place horizontal members crown side up.
- D. Nailing shall be in accordance with ~~USC table [25-G][23-I-G]~~ [2304.9.1], unless indicated otherwise. IBC  
[Use screws when fastening into metal framing and supports.]
- E. Use framing members full length without splices.
- F. Tolerances:
1. Maximum 1/4 inch from true position.
  2. Maximum 1/4 inch in 10 feet from true plumb or level.
- G. Site treat cut ends of field cut pressure preservative treated lumber with compatible material as recommended by the treatment materials manufacturer.
- H. [After end trimming glued laminated beams, seal with penetrating sealer in accordance with AITC requirements. ] [Do not apply sealer to surfaces to receive stains or other finish treatments.]
- I. ~~Special requirements for Plate Connected Wood Trusses:~~
1. ~~Install trusses in accordance with manufacturer's instructions.~~
  2. ~~Do not field cut or alter structural portions of trusses.~~
- J. [Place sill gasket directly on concrete foundation. Puncture gasket clean and fit tight to protruding foundation anchor bolts.]

### **3.3 SHEATHING**

- A. Install sheathing as indicated. When not indicated, install as follows:
1. Secure sheathing with edges on firm bearing. [Provide solid edge blocking between sheets], except use galvanized steel sheathing clips at unsupported edges between sheets at roof sheathing.]
  2. Secure roof sheathing perpendicular to framing members with ends staggered.
- B. Fastening shall be in accordance with code requirements. Use screws in lieu of nails when fastening into metal lightgauge metal framing. [Use screws at all floor and deck sheathing.]
- C. Allow 1/8 inch spacing at ends and edges between panels, unless otherwise recommended by panel manufacturer.
- ~~D. Floor sheathing shall be glued to framing members in accordance with panel manufacturer's recommendations.~~
- E. [Additional Requirements for Underlayment:
1. Place 15 lb felt building paper between underlayment and subflooring.
  2. Secure flooring underlayment after dust and dirt generating activities have ceased and prior to application of finished flooring. Apply perpendicular to subflooring. Stagger end joints of underlayment. Secure with ring shank nail type fasteners.]
- F. [Special Requirements for Plywood Deck Sheathing to Receive Waterproof Deck Coating:
1. Provide temporary watertight cover, schedule work during dry weather, or otherwise control work as necessary to prevent plywood sheathing to receive waterproof deck coating system from becoming wet prior to membrane installation.
  2. Coordinate work with the membrane installer.]

### **3.4 BLOCKING, NAILERS, AND CURBS**

- A. Provide blocking, nailers, and curbs for sheathing, roof construction, metal flashing, and other construction as indicated, and as necessary for firm support. Unless otherwise indicated, solid wood backing shall be minimum 2 inch nominal thickness; plywood shall be minimum 3/4 inch thick, except that sloped parapet caps may be 1/2 inch thick.]
- B. Blocking: Install wood blocking to receive mechanical fasteners for support of plumbing and electrical fixtures and equipment, cabinets, door stop plates, wood base, wainscots, coat hooks, toilet and bath accessories, kitchen equipment, and all other wall and ceiling mounted components.
- C. Screw fasten wood components to metal framing and support elements.

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- D. For attachment of plywood backing, kerf plywood 1/4" (3/8", maximum if required for heavy gage studs) to receive flange return (or crimp the return closed); provide supplementary sheet metal angle attached to back of stud where necessary to support backing. Screws into edge of plywood are unacceptable.

### **3.5 PLYWOOD TERMINAL BACKBOARDS**

- A. Provide a fire retardant treated plywood terminal backboard for telephone systems where indicated on the drawings.
- B. Mechanically apply directly over gypsum backing board.

### **3.6 BUILDING PAPER**

- A. Sequence with installation of flashing.
- B. Install one ply of building paper over sheathing or substrate as detailed. Lap vertical joints 12 inches, minimum; weatherlap horizontal joints 6 inches, minimum. Fasten to substrate.
- C. Lap over through-wall flashings.
- D. Seal around penetrations with mastic.
- E. [Special Requirements for Strip Flashing around Windows:
  - 1. Cut the building paper around rough openings, sequenced with installation of strip flashing and windows.
  - 2. Provide a minimum 6 inch wide strip of strip flashing at the sill of each window opening. Extend the flashing down from the bottom of the opening and lapped over the building paper. Extend past the opening 12 inches on each side.
  - 3. Provide a minimum 6 inch wide strip of strip flashing at each jamb of opening. Extend the flashing out over the building paper from the jamb edge of the opening. Lap over the sill flashing 12 inches, and extend up past the head of the opening 12 inches.
  - 4. Allow installation of the window. After installation of the window, provide a minimum 6 inch wide strip of strip flashing lapped over the top flange of the window. Extend past the opening on each side 12 inches.
  - 5. Sequence the installation of building paper rolls such that the building paper laps over the strip flashing at the head the full 6 inches, or provide an additional strip of building paper which laps over the strip flashing, yet is lapped to weather under the layer of building paper above the window.]
- F. [Special Requirements for Door Frames and Other Elements Without Nail Flanges:
  - 1. Install strip flashing as specified for windows, except lap the strip flashing over the frame as necessary to seal tightly to the frame.
  - 2. Hold the strip flashing back such that the wood trim will completely cover the strip flashing, and no edges of strip flashing will remain exposed in the completed work.]

**END OF SECTION**