SECTION 06100

ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural dimension lumber framing.

B. Non-structural dimension lumber framing.

C. Fire retardant treated wood materials.

D. Miscellaneous wood nailers, furring, and grounds.

E. Patio shade trellis and eyebrow trellises.

F. Plywood substrate at metal roofing.

1.02 RELATED REQUIREMENTS

A. Section 05120 - Structural Steel: Prefabricated beams, columns, and hangers for support of wood framing.

B. Section 07461 - Wood Siding: Ipe wood boarding.

1.03 REFERENCE STANDARDS

A. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

B. ASTM D 2898 - Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing.

C. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

D. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association.

E. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood-Preservers' Association.

F. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce).

G. WCLB (GR) - Standard Grading Rules for West Coast Lumber No. 17; West Coast Lumber Inspection Bureau.

H. WWPA G-5 - Western Lumber Grading Rules; Western Wood Products Association.

1.04 SUBMITTALS

A. See Section 01350 - Submittals, for submittal procedures.

B. Product Data: Provide technical data on wood preservative materials and sealer.

C. Samples: Submit two samples of Ipe wood illustrating wood grain, color, and general appearance.

D. Manufacturer's Certificate for Softwood Lumber: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

E. Manufacturer's Certificates for Ipe Lumber:
   1. A certificate from an independent U.S. testing laboratory indicating conformance to mechanical properties.

2. A Certificate of Grade and Inspection indicating compliance with material specification as to producing mill, including Premium CAH grade, species, dimensions, quantity, condition, packaging, and documentation. Certification shall be by an independent third party inspection and grading agency. Inspections are to take place at the mill throughout production and the certificate is to be submitted prior to delivery to jobsite.
3. A mill certificate confirming registration with IBAMA

1.05 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Softwood Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. Species: Douglas Fir, unless otherwise indicated.

B. Dimension Ipe Lumber: Comply with the requirements of specified grading agencies.

2.02 DIMENSION LUMBER

A. Grading Agency: West Coast Lumber Inspection Bureau (WCLB) for Douglas Fir.

B. Grading Agency: Brazilian Institute for the Environment and the Renewal of Natural Resources (IBAMA).

C. Sizes: Sizes as indicated on drawings for Douglas Fir.

D. Sizes: Net sizes as indicated on drawings for Ipe Lumber.

E. Moisture Content: S-dry for Douglas Fir and 18 to 25 percent for Ipe.

F. Ipe Lumber Framing.
   1. Grade: All lumber shall be graded Premium-CAH (Premium-Clear All Heart) grading rules, defined as follows:
      a. Lumber shall be graded both faces, and both edges.
      b. Lumber shall be straight grained and parallel cut without heart center.
      c. Lumber shall be all heartwood, no sapwood allowed.
      d. Lumber shall be in sound condition, free from wormholes or knots.
      e. Allowable Imperfections defined as - Natural drying checks, discoloration caused by weathering or chemical reaction, bow or twist which can be removed using normal installation methods and tools.
      f. Not Allowable Imperfections defined as - Longitudinal heart cracks, internal cracks, firm or soft sap wood, fungi affects - (blue to gray, brown to red, white to yellow, or incipient decay), deformation - (twisting or bow) which cannot be removed using normal installation methods and tools.
   2. Mechanical Properties: Shall meet or exceed mechanical properties as defined by U.S. Forest Product laboratories testing methods. The values for mechanical properties based on the 2-inch standard are as follows:

MC%	Bending Strength	Modulus of Elasticity	Max. Crush Strength
AD	22,475 psi	3,145,000 psi	13,140 psi

      a. Janka side hardness is 3,595lb. at 12%M.C.
      b. Average air-dry density ranges from 56.7 to 59.3pcf.
      c. Basic specific gravity ranges from 0.85-0.97.

G. Miscellaneous Softwood Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 1 or Construction Grade.
   2. Boards: Standard.

2.03 SHEET MATERIALS

A. Softwood Plywood: Douglas Fir, Structural.
   1. C plugged grade-D, exterior plywood sheathing.

B. Thickness shall be as indicated on drawings.

2.04 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M preservative-treated wood locations, unfinished steel elsewhere at softwood lumber and stainless steel "self-drilling" type at Ipe lumber as recommended by Ipe lumber manufacturer.
   2. Anchors: Bolt or ballistic fastener for anchorages to steel. Use stainless steel at Ipe lumber.

B. End Coating for Ipe Lumber: Aqueous wax log end sealer.

2.05 FACTORY WOOD TREATMENT

A. Treated Lumber: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Fire Retardant Treatment: Where noted on drawings.

C. Preservative Treatment:
   1. Manufacturers:
      a. Arch Wood Protection, Inc: www.wolmanizedwood.com.
      b. Chemical Specialties, Inc: www.treatedwood.com.
      c. Osmose, Inc: www.osmose.com.
      d. Substitutions: See Section 01640 - Product Requirements.
   2. Preservative Pressure Treatment of Lumber Above Grade: AWPA Use Category UC3B, Commodity Specification A (Treatment C2) using waterborne preservative to 0.25 lb/cu ft retention.
      a. Treat lumber as noted on drawings.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

3.02 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Pre-drill Ipe wood and countersink for installation of stainless steel self-drilling type fasteners.

C. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

D. Install structural members full length without splices unless otherwise specifically detailed.

E. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes.

F. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.

G. Provide bridging at joists in excess of 8 feet span as detailed. Fit solid blocking or bridging as detailed.

3.03 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

3.04 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with metal deck construction and roofing assembly installation.

3.05 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.06 CLEANING

A. Waste Disposal:
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION