SECTION 06100

ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Install wood framing as indicated on the Drawings, specified herein, and needed for a complete and proper installation.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Codes and standards:
   1. In addition to complying with the pertinent codes and regulations of governmental agencies having jurisdiction, unless otherwise specifically directed or permitted by the Architect comply with:
      a. "Product Use Manual" of the Western Wood Products Association for selection and use of products included in that manual;
      b. "Plywood Specification and Grade Guide" of the American Plywood Association;
      c. "Standard Specifications for Grades of California Redwood Lumber: of the Redwood Inspection Bureau for Redwood, when used.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Comply with pertinent provisions of Section 01620.

PART 2 - PRODUCTS

2.1 GRADE STAMPS

A. Identify framing lumber by the grade stamp of the West Coat Lumber Inspection Bureau, or such other grade stamp as is approved in advance by the Architect.

B. Identify plywood as to species, grade, and glue type by the stamp of the American Plywood Association.

C. Identify other materials of this Section by the appropriate stamp of the agency approved in advance by the Architect.

2.2 MATERIALS

A. Provide materials in the quantities needed for the Work shown on the Drawings, and meeting or exceeding the following standards of quality:
   1. Horizontal framing members: Douglas Fir-Hemlock, Table 1, Construction grade.
   2. Vertical framing members: Douglas Fir-Hemlock, Table 1, Standard grade.
   3. Plywood:
      a. Sheathing: Structural II, C-C, exterior; or standard sheathing with exterior glue.
      b. Telephone backboard: 3/4" thick, A-D, group 1, interior.
   4. Building paper: Kraft paper complying with Fed Spec UU-B-790a.
   5. Wood preservative: Ammoniacal copper arsenite, or 5% solution of pentachlorophenol.
   6. Rough hardware:
      a. Steel items:
         (1) Comply with ASTM A7 or ASTM A36.
         (2) Use galvanized at exterior locations.
      b. Machine bolts: Comply with ASTM A307.
      c. Lag bolts: Comply with Fed Spec FF-B-561.
      d. Nails:
         (1) Use common except as otherwise noted.
         (2) Comply with Fed Spec FF-N-1.
         (3) Use galvanized at exterior locations.
      e. Joist hangers: Simpson, Teco, or equal as approved by the Architect.
   7. Exterior gypsum sheathing: Butt edge, 1/2" thick, complying with ASTM C630.

2.3 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 DELIVERIES

A. Stockpile materials sufficiently in advance of need to assure their availability in a timely manner for this Work.

B. Make as many trips to the job site as are needed to deliver materials of this Section in a timely manner to ensure orderly progress of the Work.

3.3 COMPLIANCE

A. Do not permit materials not complying with the provisions of this Section to be brought onto or to be stored at the job site.

B. Promptly remove non-complying materials from the job site and replace with materials meeting the requirements of this Section.

3.4 WORKMANSHIP

A. Produce joints which are tight, true, and well nailed, with members assembled in accordance with the Drawings and with pertinent codes and regulations.

B. Selection of lumber pieces:
1. Carefully select the members.
2. Select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nails, and will allow making of proper connections.
3. Cut out and discard defects which render a piece unable to serve its intended function.
4. Lumber may be rejected by the Architect, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting.

C. Do not shim any framing component.

3.5 GENERAL FRAMING

A. General:
1. In addition to framing operations normal to the fabrication and erection indicated on the Drawings, install wood blocking and backing required for the work of other trades.
2. Set horizontal and sloped members with crown up.
3. Do not notch, cut, or bore members of pipes, ducts, or conduits, or for other reasons except as shown on the Drawings or as specifically approved in advance by the Architect.

B. Bearings:
1. Make bearings full unless otherwise indicated on the Drawings.
2. Finish bearing surfaces on which structural members are to rest so as to give sure and even support.
3. Where framing members slope, cut or notch the ends as required to give uniform bearing surface.

END OF SECTION - 06100

SECTION 06172

PREFABRICATED WOOD I-JOISTS

PART 1 - GENERAL

1.01 SUMMARY

A. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, Special Conditions and/or other such Provisions as the Owner may require, and Division 1 of these Specifications.

B. Section Includes:
1. Prefabricated wood joists.

1.02 REFERENCES

A. West Coast Lumber Inspection Bureau:
1. WCLIB - Standard Grading Rules for West Coast Lumber, No. 16.

B. International Code Council.
1. ICC ES ESR-1153

C. California Code of Regulations - Title 24.
1. CBC Chapter 23A.

1.03 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacture of prefabricated wood joists with five years minimum experience.

B. Lumber Grading Agency: Certified by WCLIB.

1.04 SUBMITTALS

A. Submit shop drawings, design calculations, and product data under provisions of Section 01300.

B. Indicate framing system, sizes and spacing of joists, cambers, bearing and anchor details, bridging and bracing and framed openings.

C. Submit test reports certification of calibrations of testing machines and evaluation of test results, as required by CBC Section 2343.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and protect joists per manufacturer's instructions.

B. Transport and store joists in vertical position resting on bearing ends.

C. Protect joists from moisture, warpage, and distortion during transit and when stored.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Approved Manufacturers:
   1. iLevel Truss Joists Commercial.
   2. Georgia Pacific Corp.

2.02 MATERIALS

A. Lumber Grading Rules: WCLIB.
   1. Lumber shall be aged, with moisture content lot less than 11 percent or more than 19 percent, in accordance with CBC Chapter 23.

B. Flange members, web members, and adhesives shall confirm to the provisions of ICC ES ESR-1153.

2.03 FABRICATION

A. Fabricate joists in compliance with CBC Chapter 23.

B. Fabricate joists in accordance with manufacturer's standards, and as detailed on the Drawings.

C. Verify dimensions and site conditions prior to fabrication.

D. Cut members accurately to length to achieve tight joint connections.

E. Joists shall be fabricated under the supervision of a qualified third-part inspection agency.

F. Identify each joist with a stamp including the joist series, KC-ES evaluation report number, manufacturer, plant number, date of fabrication, and independent inspection agency's logo.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify that supports and openings are ready to receive joists.

B. Verify sufficient end bearing area.

C. Beginning of installation means acceptance of existing conditions.

3.02 PREPARATION

A. Coordinate placement of support items.

3.03 INSTALLATION

A. Install joists in accordance with the Drawings.

B. Place joists true to line and level.

C. Place permanent hangers and anchors to maintain joists straight and in correct position before inducing loads.

D. Temporary construction loads shall not exceed design load limits..

E. Coordinate placement of sheathing with work of this Section.

3.04 TOLERANCES

A. Depth: ±1/16".

B. Flange Width: ±1/16".

3.05 TESTING AND INSPECTIONS

A. Joists shall be tested in accordance with CBC Section 2343.5.

END OF SECTION - 06196

SECTION 06180

GLUE LAMINATED BEAMS

PART 1 - GENERAL

1.01 SUMMARY

A. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, Special Conditions and/or other such Provisions as the Owner may require, and Division 1 of these Specifications.

B. Section Includes:
1. Glue laminated wood beams.

1.02 REFERENCES

A. American Society for Testing and Materials.
1. ASTM D3737 - Establishing Stresses for Structural Glued Laminated Timber.

B. American National Standards Institute.
1. ANSI A190.1 - Structural Glued Laminated Timber.

C. US Department of Commerce - Product Standards.
1. PS 56 - Structural Glued Laminated Timber.

D. Western Wood Products Association.
1. WWPA - Grading Rules.

E. West Coast Lumber Inspection Bureau.
1. WCLIB - Grading Rules No. 16.

F. California Code of Regulations - Title 24.
1. CBC - Chapter 23 Wood.

G. American Wood Systems.
1. AWS – Design/Construction Guide.

1.03 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacture of glue laminated structural units with five years minimum experience, and certified by the AITC.

1.04 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Shop Drawings and Product Data: Indicate framing sizes and cambers.

C. Provide a Certificate of Conformance indicating products comply with ANSI A190.1.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and protect members in accordance with AITC requirements for load wrapped material, with a water-resistant covering for shipment.

B. Trademarks: Members shall be marked with the APA EWS trademark indicating conformance with the manufacturing, quality assurance and marking provision of AWS and ANSI A190.1.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials, Manufacture and Quality Control: Comply with PS 56.

B. Lumber: Comply with Standard Grading rules of WWPA and WCLIB.
1. Species: Douglas Fir, Larch.

C. Adhesives, Wet-Use Type: Melamine, melamine-urea, phenol, resorcinol or phenol-resorcinol types. Comply with the applicable requirements of CBC Chapter 23.

D. Laminating Combinations: Meet the requirements of PS 56. Provide allowable stress values of 2400 psi in bending (Fb).

E. Service Temperature Maximum: Less than 150 degrees F maximum.

2.02 FABRICATION

A. Comply with ANSI A190.1, ASTM D3737, CBC Chapter 23 and the following requirements:
1. End joints in adjacent laminations: Separated by a minimum of 6 inches. Plain scarf end joints: Slope not steeper than 1:10. Strength reducing defects such as wane not be permitted in an end joint. Finger Joints: Cut in wood which is free of knots and local grain deviation.
2. The sum of the sizes of all knots which appear in the beveled surface of a scarf shall not exceed 1/4 the nominal width of lamination when laminations are 1-1/2 inches in thickness, and shall be reduced in proportion to the thickness of laminations to 1/8 the width of laminations when laminations are 5/8 inch or less in thickness.
3. The moisture content of lumber in a single package of laminations at the time of gluing: Less than 16 percent. The range of moisture content of various laminations assembled into a single member shall not exceed 5 percentage points if any piece in the assembly exceeds 12 percent.
4. Adhesive: "Wet-Use" type only.

B. Fabrication: In accordance with the best practices with adequate plant and equipment and under supervision of properly qualified personnel.

C. Gluing surfaces of laminations including edge and end joints: Plane surfaces, machine-surfaced smooth, and except for minor local occurrences, free of raised grain, torn grain, skips, burns, glazing, or other deviations from the plane of the surface that might interfere with the contact of sound wood fiber in mating surfaces of the laminations.

D. Gluing surfaces, whether treated or untreated shall at the time of gluing be free from dust or other foreign matter, including any exudation or surface damage that would be detrimental to satisfactory gluing.

E. At the time of gluing, variations in thickness across the width or along the length of any lamination shall not exceed plus or minus 0.08 inch and cup should not exceed 1/32 inch for each inch of width for lumber nominal 1 inch and less in thickness, and should not exceed 1/64 inch for each inch of width for lumber over nominal 1-inch thickness.
   1. In no event shall cup and warp exceed that which will be straightened out by pressure in gluing.

F. Clamping Methods: Such that the pressure is as uniform as practical over the whole area.

G. Nailing in lieu of clamping for pressure shall not be permitted. Clamping may start at any point but shall progress to an end or ends.

H. Gluing Pressure: Such as to assure close contact of the surfaces and provide a uniformly thin glue line, but not less than 100 lbs psi.

I. Maintain pressure until the adhesive has set. Clamping time and curing process shall be in accordance with adhesive manufacturer's recommendations.

J. Finishing: Seal all end grain at place of fabrication after ends have been finally trimmed.

2.03 COMBINATION AND APPEARANCE GRADE

A. Combination: 24F-V8, in compliance with AITC 203.

B. Appearance of Members: Industrial Grade where concealed, Architectural Grade, surfaced all sides, rough-sawn, where exposed.

C. Units shall be fabricated for wet use.

2.04 INSPECTION AND TESTING

A. The inspection and test procedures to be used in the production of structural glued laminated timber shall comply with CBC Chapter 23.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify that supports are ready to receive glue-laminated beams.

B. Verify sufficient end bearing area.

C. Beginning of installation means acceptance of existing conditions.

3.02 PREPARATION

A. Coordinate placement of bearing and support items.

3.03 ERECTION

A. Set structural members level and plumb in correct positions.

B. Provide temporary bracing and anchorage to hold members in place until permanently secured.

C. Fit members together accurately without trimming, cutting, or any other unauthorized modification.

3.04 TOLERANCES

A. Framing Members: 1/2 inch maximum from true position.

END OF SECTION - 06180