

SECTION 06100 – ROUGH CARPENTRY

PART 1: GENERAL

1.01 THE REQUIREMENT:

- A. The Contractor shall construct all rough carpentry and appurtenant work, complete and in accordance with the requirements of the Contract Documents.
- B. The work shall include, but not be limited to, completion of the following principal items:
 - 1. Wood framing, including studding, rafters, purlins and similar framing elements.
 - 2. Wood blocking, furring, stripping, backing and nailers, as shown, specified, or otherwise required for securing the work.
 - 3. Plywood sheathing.
 - 4. All rough hardware appurtenant to the work of this Section, as defined in Paragraph entitled, "Rough Hardware", herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

- A. Cast-In-Place Concrete. Section 03300
- B. Reinforced Brick Masonry. Section 04231
- C. Miscellaneous Metalwork. Section 05500
- D. Finish Carpentry and Millwork. Section 06200

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS:

- A. Codes: The Building Code, as referenced herein, shall be the Uniform Building Code (UBC), as specified in Section 01090 entitled, "Reference Standards".
- B. Commercial Standards:

AITC 104-65	Timber Construction Manual
AITC 105-65	Timber Construction Manual
AWPA C 1-69	AWPA Manual of Recommended Practice, Standard For Preservative Treatment by Pressure Process--All Timber Products
UBC Std. 25-10	Structural Glued-Laminated Timber
UBC Std. 25-12	Preservative Treatment by Pressure Processes and Quality Control Standards
WCLIB	Standard Grading and Dressing Rules No. 16 of the West Coast Lumber Inspection Bureau

1.04 CONTRACTOR SUBMITTALS:

- A. The following shall be submitted to the Engineer for review, approval or verification in accordance with Section 01300 entitled, "Contractor Submittals".
 - 1. Manufacturer's catalogs showing rough hardware conforming to or equivalent to hardware shown.

PART 2: PRODUCTS

2.01 UNTREATED LUMBER:

- A. Grading: Lumber shall be graded in accordance with the "Standard Grading and Dressing Rules No. 16", of the West Coast Lumber Inspection Bureau (WCLIB) or in accordance with "Grading Rules for Western Lumber", published by Western Wood Products Association, as specified herein.
- B. Grade Marking: Each piece of lumber shall bear the official grade mark of recognized grading agencies using one of the above mentioned grading rules. The Association standards for grading and grade marking of the lumber shall be acceptable to the Engineer.
- C. Size Dressing: All lumber, except as otherwise shown or specified herein, shall be dressed to size in accordance with the standards of the association under which the lumber is graded. All lumber shall be S4S unless otherwise shown.
- D. Drying: All lumber incorporated in the work, except where otherwise specified, shall be air or kiln dried to a moisture content of not more than 19% and not less than 1%.

2.02 TREATED LUMBER:

- A. All wood nailing blocks, sills and plates resting on or embedded in concrete or masonry within 18-inches of grade shall be pressure-treated in accordance with American Wood Preservers' Association Manual of Recommended Practice, Standard for Preservative Treatment by Pressure Process-All Timber Products, Cl. Preservative shall conform to American Wood Preservers Assn. and American Wood Preserves Bureau Standard Specifications referenced in Paragraph entitled, "References Specifications, Codes and Standards". Creosote shall not be used.
- B. Wherever necessary to cut, notch, dap, drill or frame treated lumber, newly cut or bored surfaces shall be treated with two heavy coats of the same preservative used in the original treatment. The minimum penetration depth shall be 1/4-inch.

2.04 PLYWOOD AND HARDWOOD:

- A. Plywood: Plywood shall conform to the requirements of U. S. Product Standard PS 1 as specified herein. All plywood panels shall be marked with grade mark of the American Plywood Association. The mark shall identify the plywood as to species, glue type and grade in compliance with the applicable commercial standard. Except as otherwise specified below or shown, plywood shall be Douglas Fir, Exterior, C-D, SiS,. Plywood for other specific applications shall be as follows:
 - 1. Plywood for use in concrete forms shall conform to the requirements of Section 03300 entitled, "Cast-In-Place Concrete".

2. Plywood for backup boards behind telephone equipment, electrical equipment or communication equipment shall be Douglas Fir, A-C EXT grade for interior and exterior locations.
- B. Hardboard: Hardboard shall be temper-treated panels manufactured from interfelted ligno-cellulose fibers consolidated under heat and pressure in a hot press to produce a smooth, hard-surfaced material which is resistant to water and stains. Hardboard shall conform to the requirements of PS 58.

2.05 ROUGH HARDWARE:

- A. General: The term "rough hardware" shall include nails, screws, lag screws, bolts, nuts, washers, plates, metal fasteners and framing anchors; anchor bolts which are to be embedded into concrete, concrete masonry or brick masonry; and similar items employed in erection and construction of the rough carpentry work. Rough hardware shall be of standard manufacture, approved by a recognized agency for the intended applications and shall be provided with laboratory test results on capabilities when requested by the Engineer. All hardware items shall be steel unless specified or shown otherwise.

2.06 MISCELLANEOUS PRODUCTS:

- A. Building Paper: Building paper or felt shall be non-perforated, asphalt-saturated organic felt conforming to ASTM D 226, 15 lbs. per 100 square feet.

PART 3: EXECUTION

3.01 GENERAL:

- A. Rough carpentry shall be as shown, specified and as necessary to complete work. The Contractor shall verify drawing dimensions with actual field conditions and shall inspect related work and adjacent surfaces and shall report to the Engineer all conditions which could prevent proper execution of this work.
- B. All rough hardware not otherwise specified and which is necessary for the satisfactory execution of framing, including nails, spikes, dowels, fasteners and similar incidentals shall be provided and installed by the Contractor. Rough hardware shall be coordinated, furnished, installed and imbedded as shown and as required for a complete work.
- C. Framing members and assemblies shall be closely fitted, accurately set and rigidly secured to required lines, levels and arrangements shown. Framing shall be accurately and neatly cut and shall be securely nailed, spiked or otherwise fastened in place in a workmanlike manner. Timber connectors and installation thereof shall conform to applicable requirements of AITC 104 and AITC 105 of the Timber Construction Manual of the American Institute of Timber Construction.

3.02 FASTENERS AND FRAMING DEVICES:

- A. Nailing: Where nail spacing is not otherwise regulated by the Building Code, nails shall not be driven closer together than 1/2 their length unless driven in drilled holes, nor driven closer to the edge of a member than 1/4 of their length. When necessary to prevent splitting, holes shall be drilled slightly smaller than nail diameters. The nails shall penetrate the second or farther member not less than 1/2 the nail length. Common nails shall be used unless otherwise specified or shown.
- B. Bolts and Nuts: Malleable or cut-steel washers shall be provided under bolt heads and nuts except where bearing on steel plates or other steel attachments or where flat-head countersunk bolts are shown. Bolt holes shall be drilled 1/32-inch to 1/16-inch larger

diameter than the bolts they are to accommodate and shall be bored true-to-line. Members shall be clamped together and bolts shall be driven in place and nuts drawn up tightly. Bolts shall be drawn tight again immediately prior to enclosing with finish or, if left exposed, upon completion of other work. Holes at anchor bolts embedded in concrete may be 1/16-inch larger than bolt diameter.

- C. Screws: Lag and wood screws shall be screwed, not driven, into place. Holes to receive lag screws shall be bored first of the same diameter and depth as shank, then continued to depth equal to length of screw with diameter equal to the base of the screw thread. Screws shall penetrate into the farther member a distance equal to at least seven times the diameter of the screw shank. Washers shall be installed under each lag screw head bearing on wood.
- D. Metal Framing Devices: Metal framing devices shall be furnished and installed where shown. Nails for the framing devices shall be as furnished or recommended by the manufacturer of the anchor device. All nails shall be driven to their full depth at all holes in anchors. Bolt and lag fasteners shall be drawn tight.

3.03 FRAMING:

- A. Strength Considerations: Structural wood framing member shall not be spliced between bearing points or supports. Approval shall be secured from the Engineer before cutting of any wood members that may weaken structure. Due care shall be exercised in placing framing so that structural and other important members do not require cutting for openings, pipes, vents, conduits or ducts. Bearing surfaces on which wood structural members are to rest shall be finished to give full, true and even support. Wedges or shims shall not be used to correct faulty work. Wood members which have been split or otherwise damaged to such an extent as to impair their strength shall be removed and replaced at no additional cost to the Owner.
- B. Cutting and Notching: Only skilled workmen shall be used for all cutting and framing of wood members required to accommodate structural members, routing of piping, conduit, ducts and the installation of mechanical, electrical or other apparatus or equipment. Members shall not be cut, notched nor bored more than 1/4 of their depth without adequate and approved reinforcing.
- C. Blocking and Backing: All blocking and backing in walls and ceilings shall be nominal 2-inch thick material of a depth as needed and shall be accurately located around light fixtures, ceiling register, grilles and other required mechanical and electrical items. The blocking shall fit snugly and shall be spiked into the supporting framing members. Wood blocking (backing) to receive sheathing, siding, metal lath and gypsum board shall be provided wherever necessary for securing the facing materials.
- D. Backing for Specialties and Accessories: Backing shall be accurately located and installed for all building specialties, toilet accessories and finish hardware items as required.
- E. Concrete-Imbedded Blocks: Where required and approved, nominal 2-inch thick nailing blocks (dovetail type) shall be provided in concrete to receive superimposed wood stripping, grounds and backing. Applied grounds or stripping shall be securely nailed into wood nailing blocks, using nails of approved length.
- F. Furring: Furring shall be 2-inch by 3-inch wood studs spaced at 16-inches on center, laid flat to the wall. Light metal framing may be substituted at non-thermo wall conditions as specified in Section 05400 entitled, "Light Metal Framing". Other sizes and spacing of furring or stripping shall be as shown or specified in the Contract Documents.

END OF SECTION 06100

SECTION 06200 - FINISH CARPENTRY AND MILLWORK

PART 1 - GENERAL

1.01 THE REQUIREMENT:

- A. The Contractor shall construct all finish carpentry and millwork and appurtenant work, complete and in accordance with the requirements of the Contract Documents.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

- A. Rough Carpentry. Section 06100
- B. Finish Hardware. Section 08710
- C. Architectural Paint Finishes. Section 09900

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS:

A. Codes:

The Building Code, as referenced herein shall be the Uniform Building Code (UBC), as specified in section entitled 01090, "Reference Standards". All Work specified herein shall conform to or exceed the requirements of the Building Code and the applicable requirements of the referenced standards.

B. Government Standards:

Fed. Spec. FF-B-561C
Fed. Spec. FF-S-111D
U. S. Commercial Std. CS-35
U. S. Commercial Std. CS-157
Product Std. PS 1
Product Std. PS 58-74

C. Commercial Standards:

AWI	Architectural Woodwork Casework Details of Architectural Woodwork Institute.
SPIB	Grading Rules for Southern Pine Lumber, 1970 Edition of the Southern Pine Inspection Bureau.
WCLIB	Standard Grading and Dressing Rules No. 16 of the West Coast Lumber Inspection Bureau.
WWP	Standard Grading Rules for Western Lumber, Western Wood Products Associates.

1.04 DESCRIPTION OF WORK:

- A. Extent of each type of architectural woodwork is indicated on drawings and in schedules.
- B. Types of architectural woodwork includes the following:
- C. Architectural cabinets including:

1. Laminate clad cabinets.
2. Tops.

1.05 **CONTRACTOR SUBMITTALS:**

- A. Shop drawings, material samples, manufacturer's literature, results of required tests, testing reports, etc. shall be submitted in accordance with Section 01300 entitled, "Contract Submittals".
- B. Shop drawings of all cabinets and case work including samples of hardware and laminates shall be provided. Color samples and literature on laminated plastic (where it is used) shall be provided for approval and color selection. Samples of doors when requested by the Engineer shall be provided by the Contractor, showing finishes including shop drawings and certificates of compliance with fabrication and test requirements, signed by authorized representatives of the door manufacturing company.
- C. Shop drawings for casework shall be complete and show all details, lumber sizes and type and grade of materials to be used.

1.06 **QUALITY ASSURANCE:**

- A. All finish carpentry and millwork shall be of the highest standard and meet the intended requirements of the referenced standards and these Specifications.

PART 2 - PRODUCTS

2.01 **WOOD PRODUCTS:**

- A. **Softwoods:** Softwoods shall be vertical grain Douglas fir or white pine, meeting AWI premium Grade requirements. Douglas fir shall conform to Standard Grading and Dressing Rules of the West Coast Lumberman's Association.
- B. **Plywood:** Softwood plywood shall conform to the requirements of the U. S. Product Standards PS-1, or Commercial Standards CS 157, Grade A for pine plywood. Hardwood plywood shall conform to the requirements of the U. S. Commercial Standard CS 35. Plywood backboards and plywood wainscot shall be APA Grade trademarked A-C-INT-APA. Backing for countertops shall be 3/4-inch thick particle board or plywood in accordance with written recommendations of the laminated plastic manufacturer.
- C. **Particle Board:** Industrial grade minimum 60-lb. density.

2.02 **FASTENERS:**

- A. Nails for exterior shall be stainless steel where exposed to the elements.
- B. Lag Screws shall conform to FS FF-S-111D. Cadmium plated screws, bolts and washers shall be used on exposed interior work. Screws for exterior use shall be stainless steel.

2.03 **PLASTIC LAMINATES:**

- A. Laminated plastic shall be high-pressure-laminated plastic conforming to NEMA LC-3-80.
- B. Laminated plastic countertops, splashes and paneling shall be of the same grade as cabinet and casework. WIC Certified Compliance Grade Stamp and certificates shall be provided.

2.04 ARCHITECTURAL CABINETS, LAMINATE CLAD:

- A. Quality Standard: Comply with AWI Section 400 and its Division 400B.
- B. Laminate Clad Cabinets: Comply with the following requirements:
 - 1. Grade: Custom, and as detailed on the drawings.
 - 2. Type of Cabinet Construction: Flush overlay.
- C. Laminate Cladding: High pressure decorative laminate complying with NEMA LD 3 as follows:
 - 1. Colors, Patterns and Finishes: As not selected by Architect from laminate manufacturers' standard products.
 - 2. Laminate Grade for Exposed Surfaces: Provide laminate cladding complying with the following requirements for type of surface and grade.
 - 3. Vertical Surfaces: GP-50 (0.050" nominal thickness).
 - 4. Edges: GP-50 (0.050" nominal thickness).

2.05 CONSTRUCTION:

- A. Cabinets:
 - 1. Cabinets to be constructed to have no invisible clamps, joint reinforcement or blocking on exterior.
 - 2. Core shall be forty-eight (48) lb. density composition board.
 - 3. All parts shall be machined and fit for square and true cases. Joints shall be dadoed, glued and attached with nails or screws. All backs, sub-tops and bottoms shall be rabbited into case ends, glued and stapled at 4" centers. Upper cases shall also have #10 x 1-3/4" screws at 12" centers through back at top and bottom. Tall cases shall have #10 x 1-3/4" screws at 12" centers at top only.
 - 4. All base cabinets except for sink cabinets shall have solid sub-tops of 3/4" composition board.
 - 5. All exposed edges on bottom, ends and backs of upper cabinets shall be polyvinyl chloride edge banding.
 - 6. Stretchers, rails and toe kick base shall be 3/4" plywood dadoed, glued and nailed into ends.
 - 7. All cabinets shall be completely finished at the factory. Exposed exterior surfaces shall be finished with high pressure decorative melamine laminate. Semi-exposed exterior surfaces, drawer interiors and cabinet interiors shall be finished with thermo-fused melamine.
 - 8. All cabinet backs shall be 1/2" composition board finished with thermo-fused melamine.

- B. Doors: 1/32" high pressure decorative laminate. Core shall be 11/16", forty-eight (48) lb. composition board, .027 cabinet liner inside face with PVC edgebanding at all edges.
- C. Drawers: Fronts 1/32" high pressure decorative laminate. Core shall be 11/16" forty-eight (48) lb. composition board with cabinet liner inside. Sides shall be 5/8" composition board faced both sides with thermofused melamine overlay. Bottom to be 1/4" prefinished hardboard faced with thermo-fused melamine overlay dadoed into front, sides and back. Back shall be 5/8" thermofused melamine overly. Edge exposed top edges with .020" thick PVC. Drawers installed with all nylon roller ball bearing metal slides. Full suspension file drawers shall be mounted with Grant No. 329 slides. All drawers shall be mounted iwht positive rubber cushion stops to provide permanent alignment and quiet operation.
- D. Adjustable Shelves: Cabinet shelves to be adjustable at 1" intervals and when supported at end only, 36" shelf length shall not deflect in excess of 1/8" when uniformly loaded at 25 lbs./sq. ft. Shelves 30" or longer shall be 1" thick, constructed of 48 lbs. density particle board laminated both sides with 3/4" thermo-fused melamine on both sides. Edge with .020" thick PVC, on all exposed edges.

2.06 MATERIALS:

- A. High Pressure Laminate: High pressure melamine laminate equal to or exceeding NEMA Standards for vertical grade high pressure plastic laminate. Low glare, finely grained textured finish with gloss reading of 12. Color selection from manufacturer's standard offering of thirty (30) solid and six (6) wood grain patterns. Maximum of five (5) different colors per project. Only one (1) color may be used on the face of individual cabinets, exposed finished end may match face or be a second color if desired.
- B. Cabinet Liner: Cabinet liner shall be thermo-fused melamine laminate, white or beige color.
- C. Laminate Adhesive: High pressure plastic laminate shall be bonded to core with a liquid polyvinyl acetate or a urea resin adhesive at temperatures above 60°F at a pressure no less than 15 lbs./sq. in. Laminate and core to have a minimum of 8% and a maximum of 12% moisture content and is to be laminated and cured in a controlled environment between 40% and 60% relative humidity.
- D. Plywood: Plywood shall be "B" grade or better Douglas Fir bonded with waterproof phenolic adhesive.
- E. Composition Board: High grade monolithic particle flakeboard with an average of forty-eight (48) lbs./cu. ft. density and a maximum of 12% moisture content.
- F. Edge Banding: Edge banding for doors and drawer fronts shall be 3mm PVC, color as selected by Architect an resistant to all normal laboratory reagents. Edges of cabinet tops, bottoms, shelves, partitions, an drawer parts exposed to view are trimmed with 0.020 mm PVC.
- G. Thermo-fused Melamine to Particle Board: Melamine, thermo-fused to a 48 pound density or better particle board substrate in almond or white.

2.07 CABINET HARDWARE AND ACCESSORY MATERIALS:

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets.
- B. For exposed hardware comply with requirements indicated for finish and base indicated by BHMA Code Number below.

- C. For concealed hardware provide manufacturer's standard finish which complies with product class requirements of ANSI/BHMA A156.9.

2.08 ARCHITECTURAL CABINET TOPS:

- A. Quality Standard: Comply with AWI Section 400 and its Division 400C.
- B. Type of Top: High Pressure Decorative Laminate (Chemical Resistant):
 - 1. Grade: Custom.
 - 2. Laminate Cladding for Horizontal Surface: High pressure decorative laminate complying with NEMA LD 3 and as follows:
 - a. Colors, Patterns, and Finishes: As selected from laminate manufacturer's standard products.
 - b. Grade: GP-50 (0.050" nominal thickness).
 - c. Grain Direction: Parallel to longest dimension.
 - d. Edge Treatment: Same as laminate cladding on horizontal surfaces.
 - e. Sub Tops: Provide solid sub tops as indicated on the drawings.

2.08 SHELVING HARDWARE:

- A. Cabinets:
 - 1. Adjustable Shelf Standards and Related Supports: Provide standards and supports of type indicated which comply with ANSI/BHMA A156.9.
 - 2. Horizontal Slotted Type: Surface or mortise mounted, 5/8" wide x 3/16" high x length indicated, BHMA No. B84071, zinc-plated steel.

2.09 FINISH HARDWARE:

- A. Finish hardware shall be top quality hardware as itemized below and shall be provided with US 26D finish unless specified otherwise:
 - 1. Hinges shall be heavy duty wrap-around 2-1/4 inch minimum width, butts of 0.083-inch thick steel (US 26D), off-set for overlay door installation with a minimum of 5 No. 8 full thread screws to the jamb and 4 No. 8 full thread screws to the door. Loose pin butts of 0.083-inch-thick steel, National B-377, McKinny 2743, or equal. Tight pin butts of 0.083-in-thick steel, National B-851 or B-852, Stanley HT 1592, or equal. Doors over 48-inches in height shall have three (3) hinges.
 - 2. Door and drawer pulls shall be Quality No. 179; National Lock B244; Builders Brass No. 79; Jaybee 534, institutional type; or equal.
 - 3. Magnetic catches shall be EPCO 591; McKinney No. 2911; National Lock 221; Amerock V9765; Jaybee 3776; or equal.
 - 4. Drawer locks shall be National Lock C8138; Corbin 0738; or equal.

5. Drawer guides shall be KV 1300, KV 1330, KV 1336; Washington 2300; Grant 336; or equal for all drawers except file drawers which shall have KV 1460; Grant 329; Accuride 4037; full extension drawer guides, or equal.
6. Adjustable shelf standard shall be KV255; Garcy U373; Grant 125; or equal.
7. Adjustable shelf clips shall be KV256; KV239; Grant 212; or equal.

PART 3 - EXECUTION

3.01 CABINET AND CASEWORK:

- A. Millwork, cabinets and casework shall be manufactured and fabricated in accordance with the Reference Standards for Millwork.
- B. Cabinet and casework shall conform to AWI custom grade with face frame and flush overlay type door and drawer construction. Cabinet work shall receive laminated plastic finish unless shown otherwise. All visible surfaces with doors or drawers open or closed within the casework of all cabinets shall be laminated plastic or covered.
- C. Concealed casework shall be APA plywood, grade trademarked A-D INT-APA.

3.02 INSTALLATION:

- A. The Contractor shall verify drawing dimensions in the field, and shall inspect related work and adjacent surfaces. Any conditions which will prevent proper execution of the work shall be reported to the Engineer.
- B. Insofar as practicable, all work shall be shop-fabricated and assembled after taking field dimensions and shall be delivered to the job site ready for installation. All work shall be installed in accordance with these Specifications and Manufacturer's Recommendations and instructions.
- C. Wood grounds and blocking of the sizes and shapes required for installation of casework and millwork shall be provided. Cabinet work shall be coordinated with framing and blocking work, and with installation of mechanical, electrical and other equipment.
- D. All work shall be true and straight, with edges clean cut and assembled with members properly housed together and tightly jointed. Joints subject to strain shall be reinforced with screws or bolts to assure their tightness. The method of joining and reinforcing shall be as indicated on the shop drawings. Work shall be accurately positioned and installed plumb and level with separate parts fitted and properly aligned. Single lengths of wood shall be used whenever practicable. Trim shall have plowed backs unless otherwise shown.

END OF SECTION 06200

SECTION 06600- FIBERGLASS REINFORCED POLYMER PRODUCTS AND FABRICATIONS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.

1.2 SUMMARY:

This section includes the following FRP Products & Fabrications:
FRP Planks

1.3 SCOPE OF WORK:

Furnish all labor, materials, equipment and incidentals necessary to install the fiberglass reinforced polymer (FRP) planks as specified herein.

1.4 QUALITY ASSURANCE:

The material covered by these specifications shall be furnished by an ISO-9001:2000 certified manufacturer of proven ability who has regularly engaged in the manufacture and installation of FRP systems.

Substitution of any component or modification of system shall be made only when approved by the Architect or Engineer.

Fabricator Qualifications: Firm experienced in successfully producing FRP fabrications similar to that indicated for this project, with sufficient production capacity to produce required units without causing delay in the work.

In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

1.5 DESIGN CRITERIA:

The design of FRP products including connections shall be in accordance with governing building codes and standards as applicable.

Design live loads of FRP gratings and floor panels shall not be less than 100 PSF uniformly distributed unless specifically stated otherwise in drawings and/or supplementary conditions. Grating and floor panel deflection at the center of a simple span not to exceed 0.25".

Structural members shall be designed to support all applied loads. Deflection in any direction shall not be more than L/180 of span for structural members. Connections shall be designed to transfer the loads.

1.6 SUBMITTALS:

- A. Shop drawings of all planks and appurtenances shall be submitted to the Engineer for approval in accordance with the requirements of Section 01300. Fabrication shall not start until receipt of Engineer's approval marked "Approved As Submitted" or "Approved As Noted".
- B. Manufacturer's catalog data showing:
Dimensions, spacings, and construction of grating
Materials of construction

- C. Detail shop drawings showing:
Dimensions
Sectional assembly and identification mark
Size and type of supporting frames required

Samples of each type of product shall be submitted for approval prior to placement of purchase orders.

1.7 SHIPPING AND STORAGE INSTRUCTIONS:

All systems, sub-systems and structures shall be shop fabricated and assembled into the largest practical size suitable for transporting.

All materials and equipment necessary for the fabrication and installation planks and appurtenances shall be stored before, during, and after shipment in a manner to prevent cracking, twisting, bending, breaking, chipping or damage of any kind to the materials or equipment, including damage due to over exposure to the sun. Any material which, in the opinion of the Engineer, has become damaged as to be unfit for use, shall be promptly removed from the site of work, and the Contractor shall receive no compensation for the damaged material or its removal.

Identify and match-mark all materials, items and fabrications for installation and field assembly.

PART 2 – PRODUCTS

2.1 GENERAL:

Materials used in the manufacture of the FRP products shall be raw materials in conformance with the specification.

All materials shall be of the kind and quality specified.

With the exception of molded gratings and treads, all FRP products noted in 1.02 shall be manufactured using a pultruded process utilizing polyester resin with flame retardant and ultraviolet (UV) inhibitor additives. A synthetic surface veil shall be the outermost layer covering the exterior surface. The flame retardant FRP shapes shall achieve a flame spread rating of 25 or less in accordance with ASTM test method E-84. (Polyester resin is available without flame retardant and UV inhibitor additives.)

If required, after fabrication, all cut ends, holes and abrasions of FRP shapes shall be sealed with a compatible resin coating.

FRP products exposed to weather shall contain an ultraviolet inhibitor. Should additional ultraviolet protection be required, a one mil minimum UV coating can be applied.

All exposed surfaces shall be smooth and true to form.

Manufacturers:

Strongwell

alternative manufacturer approved by architect, design engineer or owner.

2.2 FIBERGLASS PLANKS:

A. General

FRP planks shall be shipped from the manufacturer, palletized and banded with exposed edges protected to prevent damage in shipment.

Each piece shall be clearly marked showing manufacturer's applicable drawing number.

FRP planks shall be SAFPLANK® as manufactured by Strongwell.

B. Design

The panels shall be 2" deep and sustain a deflection of no more than 0.25" under a uniform distributed load of 40 PSF for the span lengths shown on the plans.

FRP planks shall be capable of withstanding a uniform load of 100 PSF or a concentrated load of 300 lbs. on an area of 4 sq. inches located in the center of the plank.

The top surface of all panels shall have a non-skid grit.

Panels shall be fabricated to the sizes shown on the drawings.

Hold down clamps shall be surface mounted type 316L stainless steel. A minimum of 2 each per panel.

Hold down clamps shall be type 316L stainless steel insert hold downs as provided by Strongwell. A minimum of 2 each per panel.

Color shall be gray.

PART 3 – EXECUTION

3.1 PREPARATION:

Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions and directions for installation of anchorages, including concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

Set sleeves in concrete with tops flush with finish surface elevations; protect sleeves from infiltration of water and debris.

3.2 INSPECTION AND TESTING:

The Engineer shall have the right to inspect and test all materials to be furnished under these specifications prior to their shipment from the point of manufacture.

All labor, power, materials, equipment and appurtenances required for testing shall be furnished by the Contractor at no cost to the Owner.

3.3 INSTALLATION GENERAL:

Fastening to in-place construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous FRP fabrications to in-place construction; include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts and other connectors as determined by the Engineer.

Cutting, fitting and placement: Perform cutting, drilling and fitting required for installation of miscellaneous FRP fabrications. Set FRP fabrication accurately in location, alignment and elevation; with edges and surfaces level, plumb, true and free of rack; measured from established lines and levels.

Provide temporary bracing or anchors in form work for items that are to be built into concrete masonry or similar construction.

3.4 **ALL FRP INSTALLATION:**

If required, all field cut and drilled edges, holes and abrasions shall be sealed with a catalyzed resin compatible with the original resin as recommended by the manufacturer.

Install items specified as indicated and in accordance with manufacturer's instructions.

END OF SECTION 06600