

DIVISION 6

Woods and Plastics

SECTION 06610

GLASS FIBER AND RESIN FABRICATIONS

PART 1 -- GENERAL

1.01 THE REQUIREMENT

- A. The CONTRACTOR shall furnish and install all fiberglass items as specified herein and as shown on the Drawings. The CONTRACTOR shall be responsible for the coordination with related work specified elsewhere and to provide all hardware, accessories and appurtenances required for a complete installation, including all fabrication and mounting hardware.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Without limiting the generality of the other requirements of the specifications, all work herein shall conform to the applicable requirements of the following documents. All referenced specifications, codes, and standards refer to the most current issue available at the time of Bid.
 - 1. ASTM D2996 – Specification for Filament Wound Reinforced Thermosetting Resin Pipe
 - 2. ASTM D3647 - Standard Practice for Classifying Reinforced Plastic Pultruded Shapes According to Composition
 - 3. ASTM D3917 - Standard Specification for Dimensional Tolerances of Thermosetting Glass - Reinforced Plastic Pultruded Shapes
 - 4. ASTM D4385 - Standard Practice for Classifying Visual Defects in Thermosetting Reinforced Plastic Pultruded Products
 - 5. OSHA and Florida Building Code.

1.03 SUBMITTALS

- A. The CONTRACTOR shall submit shop drawings showing fabrication details and a Performance Affidavit for all items specified herein in accordance with Section 01300, Submittals.
- B. Certification of compliance with ASTM Standards.

1.04 QUALITY ASSURANCE

- A. All fiberglass items of the same type provided shall be the products of a single manufacturer for compatibility.
- B. It shall be the CONTRACTOR's responsibility to ensure that the fiberglass items and appurtenances furnished shall be compatible and have the necessary operating clearances with the structural elements and equipment shown on the Drawings.

- C. Manufacturer shall provide a 3 year warranty on all FRP products against defect in material and workmanship.

PART 2 -- MATERIALS

2.01 GENERAL

- A. The manufacturer shall maintain a continuous quality control program and shall, upon request, furnish the ENGINEER with certified test reports consisting of physical tests of samples.
- B. Ultraviolet light resistive resins shall be used for all exterior locations and where specified.
- C. All FRP resins shall be flame resistant and shall meet the requirements of ASTM D 635 and ASTM E 84, Class 1 with a maximum flame spread rating of 25.
- D. All edges shall be sealed in the mold where possible. Machined or cut edges shall be sealed with a compatible resin system.

2.02 GRATING

- A. Fiberglass grating shall be furnished and installed in areas shown on the Drawings including all FRP angle supports, fasteners and accessories. Gratings shall consist of extruded bearing bars positioned and locked by crossbars. Grating shall be installed in accordance with the manufacturer's recommendations.
- B. Grating shall be fabricated into easily removable sections as large as possible up to 150 lbs. per section.
- C. Fasteners shall not project above the walking surface.
- D. Fiberglass grating shall be manufactured of vinyl ester resin suitable for sodium hypochlorite service. Grating shall be pultruded fiberglass reinforced plastic, 1-1/2" deep and manufactured by IKG Industries, Fibergrate, Inc., IMCO Reinforced Plastics, Inc., Duradeck by Aligned Fiber Composites, or equal.
- E. Grating shall be designed for a uniform loading of 250 PSF allowable uniform load based on a safety factor of 2.0 on ultimate capacity or 0.25" vertical deflection maximum. Fiberglass support pedestals shall be provided at 3'-0" maximum spacing each way or as required to meet deflection criteria.
- F. The grating supplier shall supply all shelf support angles, embedded angles with anchors, concrete anchors and necessary 316 stainless steel grating clips coated with epoxy paint per Section 09900, Painting, for a complete system.

2.03 STRUCTURAL SHAPES AND FLAT SHEETS

- A. Shapes shall conform to sizes indicated on Drawings and shall be fabricated using vinyl ester resin. Shapes shall be manufactured by Strongwell, Inc., Aickinstrut, or equal.
- B. Posts or pedestals for intermediate support of grating shall consist of the following:
 - 1. Channel fitting base at each end, 5" by 5", 20PU-5853.
 - 2. Heavy duty channel 1.625" by 1.625", 20P-2000.As manufactured by Aickinstrut, Allied Electrical Group, or equal.
- C. Metal bolted connections shall be made with Hastelloy C or fiberglass fasteners and shall be suitable for use in sodium hypochlorite service.
- D. Adhesive bonded connections shall be made with a compatible epoxy adhesive following manufacturer's instructions. Adhesive bonded connections shall only be used where bolted connection are not feasible.

2.04 CONNECTIONS

- A. All connections shall be non-corrosive, non-staining, and concealed where practicable, as detailed on the Drawings or specified herein.
- B. Fiberglass fasteners shall be "Fibrebolt", as manufactured by Strongwell, Inc., or equal.
- C. All metal fasteners shall be Hastelloy C-276 or fiberglass fasteners suitable for sodium hypochlorite service.
- D. Holes for bolts and screws shall be drilled.
- E. Joints exposed to weather shall be formed to exclude water.
- F. Design and installation of fiberglass items shall provide for expansion and contraction, prevent shearing of bolts, screws and other fastenings, and provide close fitting of sections.

PART 3 -- EXECUTION

3.01 FABRICATION

- A. All cut edges and holes shall be sealed with a compatible resin.
- B. All FRP items shall conform to the dimensions indicated on the Drawings.
- C. All fiberglass items described in this Section shall be supplied by a manufacturer that normally fabricates such items so that appearance and quality control are first class.

3.02 HANDLING, TRANSPORTING, AND STORING

- A. All FRP items shall be properly packed, labeled and stored in accordance with Division 1.

3.03 INSTALLATION

- A. Installation of all items shall be according to manufacturer's instructions, unless otherwise noted.
- B. Exposed threads of FRP bolts shall be sealed with a compatible resin after installation of the bolts. Where bolts are attaching removable items, the exposed threads shall be sealed with a light coat of polyurethane sprayed onto the threads.

- END OF SECTION -

SECTION 06100

ROUGH CARPENTRY

PART 1 -- GENERAL

1.01 THE REQUIREMENT

- A. The CONTRACTOR shall furnish and install all items of rough carpentry work, necessary for a complete installation, as shown on the Drawings and as specified herein.
- B. Wood and plywood used for the Administration Building shall be from FSC certified sources.
- C. Principal items of work include:
 - 1. Wood blocking, nailers, grounds, furring, ties, centering, etc., necessary or required for attachment or support of work under this Section, and other Sections.
 - 2. Fasteners, including nails, screws, bolts, anchors and other fastenings, required to secure work under this Section.
 - 3. Temporary enclosures and protective boarding.
 - 4. Wood preservative treatment for all wood members in contact with roofing, masonry, concrete, and exposed to the elements.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Division 3 - Concrete

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Lumber to conform to American Lumber Standards' Product Standard PS 20-70. Graded by rules of manufacture's association under whose rules lumber is produced. Evidence of grade and mill marked on each piece.
- B. National Design Specification for Wood Construction - 1991 (National Forest Products Association).
- C. Southern Pine Association.
- D. Western Wood Products Association.
- E. American Plywood Association.
- F. Forest Stewardship Council (FSC)
- G. Moisture Content: Moisture content of lumber shall be maintained within the requirements of the association under whose grading rules it is produced.

1.04 SUBMITTALS

- A. Submit product data for each product that will be permanently installed in the Administration Building.

PART 2 -- PRODUCTS

2.01 MATERIALS

- A. Lumber: Lumber for headers, rafters, wood grounds, nailers and blocking shall be No. 2 common yellow pine or standard grade Douglas Fir. Moisture content shall not exceed 19%.
- B. Fire Retardant Lumber and Plywood
 - 1. Sizes shown or noted on the Drawings shall be used for all wood members except rot protected pressure treated lumber herein specified.
 - 2. Each piece shall be treated with Koppers Co., "Dricon" process, Hoover Exterior Fire-X Blue, or equal, meeting the U.L. FR-S classification for flame spread and smoke contribution.
- C. Pressure Treated Lumber
 - 1. Lumber that is required to be pressure treated shall be treated with waterborne preservatives in accordance with AWWA Standard U1 to the requirements of Use Category 3 (UC3B) for above ground use and Use Category 4 (UC4B) for ground contact.
 - 2. Each piece of the pressure-treated lumber shall be treated in accordance with the proper requirements, of the standard specifications of the American Wood Preservers Association and shall bear the brand conforming to the standard of AWWA.
 - 3. Cut or sawed surfaces in preservative treated member shall receive two coats of the same preservative used in the original treatment.
- D. Rough Hardware: Rough hardware shall be the most suitable for project requirements. Expansion shields or bolts and toggle bolts shall be provided as required. All bolts, nails, screws, anchors, straps, clips, etc., shall be galvanized.
- E. Connecting Hardware
 - 1. Nails shall be stainless steel common wire for exterior work.
 - 2. Screws shall be standard domestic manufacture, stainless steel for exterior use and of brass, bronze, aluminum or stainless steel when used to attach items made of those materials.
 - 3. Bolts shall be machine bolts (or carriage bolts if called for on Drawings) of Series 300 stainless steel with hexagon nuts, of sizes noted on Drawings. Wood fascia fasteners shall be galvanized steel and conform to the requirements of ASTM Designation A 307.
 - 4. Steel plates and angles shall be carbon steel, ASTM A 36, galvanized after fabrication for temporary items and stainless steel for permanent items as shown on the Drawings.
 - 5. Lag screws, shear plates and split ring connectors shall conform to the requirements of the "National Design Specifications for Wood Construction from the National Forest Products Association and shall be stainless steel.
 - 6. Power actuated fasteners shall conform to Federal Specification GGG-D-777a, and shall be installed as per manufacturer's printed directions. Power charge shall be

powerful enough to prevent spalling of concrete.

2.02 PLYWOOD SHEATHING

- A. All roof sheathing shall be Exterior Type Plywood, C-D, EXT-DFPA. Each panel shall be identified with the DFPA grade trademark of the American Plywood Association, and shall meet the requirements of Product Standard PS-1-83 for Construction and Industrial Plywood.
- B. Plywood thickness shall be as shown on the drawings. Install with face grain across supports with metal clips along unsupported edges as per manufacturers specifications. Fastening of the sheathing to the wood framing shall be specified on the Drawings.
- C. Nails shall be galvanized with annular ring shanks.

PART 3 -- EXECUTION

3.01 SHIPPING, HANDLING AND STORAGE

- A. Materials shall be kept dry during delivery and storage. The CONTRACTOR shall protect materials against exposure from weather and contact with damp or wet surfaces. Lumber shall be stacked with provisions for air circulation within stacks.

3.02 JOB CONDITIONS

- A. Protection: Installed carpentry Work shall be protected from damage by Work of other trades until final acceptance of work. Wood surfaces to be finished shall be protected from moisture and dirt until prime coat has been applied.
- B. Coordination: Fit carpentry Work to other work; scribe and cope as required for accurate fit. Correlate location of during, nailers, blockings, grounds and similar supports to allow proper attachment of other work.
- C. Inspection: The CONTRACTOR shall examine the substrates, supporting structure and the condition under which carpentry will be installed. Work shall not be started until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. General: The CONTRACTOR shall provide and install all rough hardware for proper installation of carpentry, nails, spikes, screws, machine bolts and similar items shall be of types and sizes sufficient to draw and rigidly secure members into place. All rough hardware shall be hot dipped galvanized on both interior and exterior work.
- B. Quality: Units of material with defects which might impair the quality of work, and units which are too small to fabricate the Work with minimum joints or the optimum joint arrangement shall be discarded.
- C. Carpentry Work shall be set accurately to required levels and lines, with members plumb and true and accurately cut and fitted.
- D. Fastening: Carpentry Work shall be securely attached to substrates by anchoring and fastening shown and as required by recognized standards. All connections between members shall be tight. Fasteners shall be installed without splitting of wood; pre-drill as required.

- E. Fasteners shall be of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Bolts and nuts shall be countersunk flush with surfaces, unless otherwise shown.
- F. All work shall be erected level and plumb and shall meet required heights, layout and details. All work shall be well nailed or bolted and adequately braced. All work shall be executed in accordance with the best practices of the trade by men skilled in the craft. Nailing shall be in accordance with the provisions of the Florida Building Code.
- G. Furring shall be 1-inch x 2-inch strips, 12-inches o.c., or 1-inch x 3-inch strips, 16-inches o.c., securely attached to masonry and concrete with casehardened nails.

- END OF SECTION-