

SECTION 05505 - MISCELLANEOUS STRUCTURAL FABRICATIONS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Miscellaneous structural fabrications.
- B. Extent of structural fabrications is indicated on drawings.

1.02 SUBMITTALS

- A. Shop Drawings: For each fabricated item show the following:
 - 1. Plans and elevations.
 - 2. Jointing and connections.
 - a. Indicate welded connections using standard AWS symbols; indicate net weld length.
 - 3. Profiles of sections and reinforcing.
 - 4. Fasteners and anchors.
 - 5. Accessories.
 - 6. Location of each finish.
- B. Product Data: Manufacturer's specifications and installation instructions. Submit for:
 - 1. All manufactured products used in fabrications.
- C. Samples of products and materials when requested.

1.03 JOB CONDITIONS

- A. Fit fabrications accurately to actual construction. If it is not practical or possible to take field measurements before fabrication, allow adequate fabrication tolerances and trim to fit.

PART 2 - PRODUCTS

2.01 MATERIALS - METALS

- A. Steel Shapes:
 - 1. Plates, bars, angles, channels, and H-sections: ASTM A 36.
 - a. Galvanizing: Hot-dip galvanizing after fabrication in accordance with ASTM A 123.
- B. Stainless Steel Shapes: Type 304 or 316, unless otherwise indicated.
 - 1. Angles, channels, and bars: ASTM A 276.
 - 2. Strip and plate: ASTM A 167.
 - 3. Finish: Ground free of visible imperfections.

2.02 MATERIALS - MISCELLANEOUS

- A. Concrete Inserts: Style as required for application.
- B. Fasteners: All fasteners used at or below the floor deck shall be stainless steel. All fasteners above floor deck shall be heavy duty galvanized steel.
 - 1. Use fasteners of same material as items being fastened unless otherwise indicated.
 - 2. Bolts and studs: ASTM A 307.
 - 3. Nuts: ASTM A 563.
 - 4. Lag bolts: FS FF-B-561.
 - 5. Plain washers: FS FF-W-92.
 - 6. Lock washers: FS FF-W-84.
- C. Galvanizing Repair Paint: Zinc dust paint complying with SSPC-Paint 20 or MIL P-21035B, Type I or II.

2.03 FABRICATION - GENERAL

- A. Fabricate and shop-assemble in largest practical sections for delivery to site.
 - 1. Prepare and reinforce fabrications as required to receive applied items.
 - 2. Fabricate items with joints tightly fitted and secured.
 - 3. Make exposed joints tight, flush, and hairline.
- B. Mechanical Finishes: Complete finishing prior to fabrication wherever possible.
 - 1. After fabrication, finish all joints, bends, abrasions, and other surface blemishes to match finish.
 - 2. Protect finish on exposed surfaces by using temporary protective covering.
- C. Anchors: Fabricate to suit substrate indicated; use anchors of same material and finish as item except where specifically indicated otherwise.
- D. Welding:
 - 1. Provide continuous welds at welded corners and seams.
 - 2. Exposed welds: Grind flush and smooth.
- E. Joints Exposed to Weather: Fabricate to keep water out, or provide adequate drainage of water that penetrates.
- F. Do not shop prime steel members.

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

- A. Anchor metal fabrications to substrates indicated; provide all fasteners required.

- B. Perform all field fabrication required for installation.
 - 1. Fit joints tightly.
 - 2. Weld joints as indicated.
 - a. Weld in accordance with AWS code.
 - b. Exposed welds: Grind flush and smooth.
 - C. Do not cut or weld items galvanized after fabrication that are indicated for bolted or screwed field connections.
 - D. Install items in correct location, plumb and level, without rack or warp.
 - E. Provide temporary supports and bracing as required.
- 3.02 CLEANING AND TOUCH-UP
- A. Touch up damage to galvanized surfaces using galvanizing repair paint in accordance with ASTM A 780.

END OF SECTION 05505

SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Rough carpentry for:
 - a. Wood framing.
 - 2. Preservative treatment.

1.02 SUBMITTALS

- A. Framing Connectors and Supports: Submit manufacturer's standard data demonstrating compliance with building code requirements.
- B. Treated Wood: Treating plant's instructions for use, including storage, cutting, and finishing.
 - 1. Pressure preservative treatment: Treating plant's certification of compliance with specified standards and stating process employed and preservative retention values.
 - a. Treatment for above-ground use: Certification of kiln drying after treatment.

1.03 QUALITY ASSURANCE

- A. Inspection Agencies:
 - 1. SPIB: Southern Pine Inspection Bureau.

PART 2 - PRODUCTS

2.01 DIMENSION LUMBER

- A. Size: Provide nominal sizes indicated, complying with NIST PS 20 except where actual sizes are specifically required.
 - 1. Surfacing, concealed lumber: Dressed lumber (S4S).
 - 2. Surfacing, exposed lumber: Dressed lumber (S4S).
 - 3. Moisture content, concealed lumber: S-dry or MC19 (19 percent maximum moisture content).
 - 4. Moisture content, exposed lumber: S-dry or MC19 (19 percent maximum moisture content). Wood columns may not meet MC19 requirements.
- B. Concealed Joist and Small Beam Framing -- 2 x 6 through 4 x 16:
 - 1. Species:
 - a. Any allowed under referenced grading rules.
 - 2. Grade: No. 2 Dense.

- C. Exposed Joist and Small Beam Framing -- 2 x 6 through 4 x 16:
 - 1. Species:
 - a. Southern Cypress.
 - 2. Grade: No. 1.

- D. Exposed Rafter Framing -- 2 x 6 through 4 x 16:
 - 1. Species:
 - a. Southern Cypress.
 - 2. Grade: No. 1.

- 2.02 EXPOSED TIMBERS - 5 INCHES OR GREATER THICKNESS
 - A. Moisture Content: S-dry (23 percent maximum).
 - B. Surfacing: S4S.
 - C. Species:
 - 1. Southern Cypress.
 - D. Grade: No. 1.

- 2.03 EXPOSED BOARDS - LESS THAN 2 INCHES THICKNESS
 - A. Moisture Content: S-dry (19 percent maximum).
 - B. Surfacing: S4S.
 - C. Species:
 - 1. Southern Cypress.
 - D. Grade: No. 1, 1 common, or select merchantable boards.

- 2.04 MISCELLANEOUS MATERIALS
 - A. Fasteners: All fasteners used at or below floor deck shall be stainless steel. All fasteners used above floor deck shall be heavy duty galvanized steel.
 - B. Framing Connectors and Supports: Prefabricated, formed steel units; stainless steel at or below floor deck; hot-dip galvanized steel above floor deck.

- 2.05 WOOD TREATMENT BY PRESSURE PROCESS
 - A. Aboveground Lumber: AWPB LP-2 (waterborne preservatives).
 - 1. Kiln dried after treatment to 19 percent maximum moisture content.
 - 2. Treat the following:
 - a. Wood in contact with masonry or concrete.
 - b. Wood within 18 inches of grade.
 - c. Other members indicated.

- B. Ground Contact Treatment: AWPB LP-22.
 - 1. Treat the following:
 - a. Wood in contact with ground.
- C. Fasteners for Preservative Treated Wood: Stainless steel, Type 304 or 316.

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

- A. Arrange work to use full length pieces except where lengths would exceed commercially available lengths. Discard pieces with defects that would lower the required strength or appearance of the work.
- B. Cut and fit members accurately. Install plumb and true to line and level.
- C. Fasten carpentry in accordance with applicable codes and recognized standards.
- D. Where exposed, countersink nails and fill flush with suitable wood filler.

3.02 WOOD FRAMING - GENERAL

- A. Comply with sizes, spacing, and configurations indicated. Where not specifically indicated, comply with applicable codes and NFPA "Manual for Wood Frame Construction." Splice members only where specifically indicated or approved.
- B. Space fasteners as indicated. Where not specifically indicated, comply with applicable codes and the "Recommended Nailing Schedule" of NFPA "Manual for Wood Frame Construction" and "National Design Specification for Wood Construction."

END OF SECTION 06100

SECTION 06200 - FINISH CARPENTRY

PART 1 - GENERAL

1.01 SUMMARY

- A. Scope:
1. All wood (other than wood described as rough carpentry): Select grade.

1.02 SUBMITTALS

- A. Lumber: Samples of each species and cut; 1-1/2 by 8 inch pieces.
- B. Coordinate installation of woodwork with other work to avoid damage.

PART 2 - PRODUCTS

2.01 WOODWORK

- A. All Woodwork:
1. Finishes: As indicated on drawings.

2.02 WOOD MATERIALS

- A. Lumber: Species and grade as indicated; lumber ready for installation shall comply with WM 4, "General Requirements For Wood Molding," Wood Molding and Millwork Producers (WMMP).
1. Specie(s):
 - a. Plain sawn select southern cypress.
 2. Softwood: Comply with NIST PS 20 and grade in accordance with the grading rules of the grading and inspection agency applicable to the species.
 3. Hardwood: Grade in accordance with National Hardwood Lumber Association grading rules.
 4. For transparent finish, use only solid pieces of lumber; WM 4 N-grade.
 5. For opaque finish, pieces which are glued up may be used; WM 4 N- or P-grade.
 6. Where glued-up lumber is used on exterior, use waterproof adhesive.
 7. Moisture content: Not greater than that required by applicable grading rules; provide kiln-dried lumber.
 8. Provide lumber dressed on all exposed faces, unless otherwise indicated.
 9. Do not use twisted, warped, bowed, or otherwise defective lumber.
 10. Sizes indicated are nominal, unless otherwise indicated.

11. Do not mark or color lumber, except where such marking will be concealed in finish work.

2.03 MISCELLANEOUS MATERIALS

- A. Transparent Finish Materials for Field Finishing: As specified in Division 9.
- B. Wood Filler for Transparent Finish Woodwork: Match final finish color.
- C. Primer: As specified in Division 9.
- D. Fasteners: Material shall be stainless steel. Style and size as required for the purpose.
 1. For exterior use with transparent finished woodwork: Stainless steel, cadmium plated, or aluminum.

2.04 FABRICATION

- A. Fabricate in sizes and shapes indicated and using details indicated.
- B. Complete fabrication and assembly in shop.
 1. Ease edges of solid lumber members where indicated, using:
 - a. 1/16-inch radius for members 1 inch or less nominal thickness.
 - b. 1/8-inch radius for members more than 1 inch nominal thickness.
- C. Where woodwork is indicated to be field finished, sand smooth, fill nail holes, clean thoroughly, and otherwise prepare for finishing.
- D. Standing and Running Trim: Miter exposed ends of members to match profile.
 1. Rout out backs of flat members over 2 inches wide, unless ends are exposed.
 2. Kerf backs of flat members over 4 inches wide, except where ends are exposed.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Verify that blocking and backings have been installed at appropriate locations for anchorage.

3.02 INSTALLATION - GENERAL

- A. Do not begin installation of woodwork until potentially damaging construction operations are complete in the

installation area.

- B. Make joints neatly, with uniform appearance.
- C. Install woodwork in correct location, plumb and level, without rack or warp.
 - 1. Where adjoining surfaces are flush, install with maximum 1/16-inch offset.
 - 2. Where adjoining surfaces are separated by a reveal, install with maximum 1/8-inch offset.
- D. Cut woodwork precisely to fit.
- E. Tightly fit joints in exterior woodwork or otherwise arrange to shed water.
- F. Secure woodwork to blocking or use anchors indicated.
 - 1. Where anchorage method is not indicated, conceal all fasteners where possible.
 - 2. Where exposed nailing is required or indicated, use finishing nails and countersink.
- G. Repair damaged and defective woodwork to eliminate visual and functional defects; where repair is not possible, replace woodwork.
- H. Standing and Running Trim: Use longest pieces available and as few joints as possible.
 - 1. Stagger joints in built-up trim members.
 - 2. Use diagonal (scarfed) joints in lengths of trim.
 - 3. Install boards cut with flat grain so bark side is exposed.
 - 4. Cope or miter at inside corners and miter at outside corners; fit tightly.
 - 5. Allowed variation in plumb and level: Not more than 1/8 inch in 8 feet.

3.03 CLEANING

3.04 PROTECTION

- A. Protect woodwork from damage and maintain design environmental conditions.

END OF SECTION 06200

SECTION 07411 - MANUFACTURED METAL ROOF PANELS

PART 1 - GENERAL

1. Manufactured metal roofing system:
 - a. Manufactured metal roof panels.
 - b. Gutters & Downspouts.

1.01 SYSTEM DESCRIPTION

A. Environmental Requirements:

1. Provide for expansion and contraction of system components due to ambient temperature and solar heat gain. Accommodate movement due to temperature change without buckling, undue stress on structural elements, reduction of performance, or other damaging effects.
 - a. Anticipated ambient temperature range: 0 to plus 120 degrees F.

B. Wind Uplift: UL Class 90.

1.02 SUBMITTALS

- A. Product Data.
- B. Shop Drawings.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. "Galvalume" Sheet: ASTM A 792; steel sheet, coated with zinc-aluminum alloy, manufactured under licensing requirements of BIEC International Inc.

2.02 ROOF SYSTEM

- A. System Type: Uninsulated system consisting of roof panels with concealed attachment clips in panel; clips secured directly to rigid substrate.
 1. Seam type: Factory-formed, field-clinched.
 2. Fabricate panels from "Galvalume" sheet steel, minimum 24 gage (0.028 inch thick).
 3. Exterior finish: Mill finish.
 4. Interior (underside) finish: Mill finish.
 5. Panel width (nominal coverage): 16 inches.
 6. Panel profile: Flat face (without ribs), 1-inch-high standing seams.
- B. Underlayment: Unperforated asphalt-saturated felt; ASTM D 226, Type II or ASTM D 4601, Type II.
- C. Concealed Panel Clips:

1. Fabricate from galvanized steel.
 2. Provide roof system manufacturer's standard type clips to suit project requirements.
- D. Fasteners:
1. Threaded fasteners - general: Provide manufacturer's standard corrosion-resistant fasteners of size and type required for intended application.
 - a. Use of cadmium-plated fasteners is not allowed.
 2. Rivets: Noncorrosive metal, compatible with metals to be fastened.
- E. Accessories:
1. Sheet metal closures, flashing, gutters, downspouts and trim: Fabricate from same type of sheet metal, and with same finish, as adjacent roof panel.
 2. Concealed sealants and gaskets: Manufacturer's standard.

2.03 FINISHES

- A. Mill Finish: As-fabricated, welds cleaned and dressed, exposed welds ground smooth. Remove oil, grease, dirt, and weld spatter from finished units.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: Install manufactured metal panels in accordance with panel manufacturer's recommended practices.
- B. Roof System Installation:
1. Underlayment: Install one layer of underlayment, starting at low point of roof. Lap seams a minimum of 2 inches. Conceal or arrange fasteners to prevent contact between fastener head and underside of metal roofing.
 2. Install roof panels in single, continuous piece from eaves to ridge.
 3. Roof panel installation: Install roof panels using concealed clips in panel joints.
 - a. Use of exposed fasteners is not permitted unless specifically approved by the architect.

END OF SECTION 07411

SECTION 08480 - OPERABLE SECURITY SHUTTERS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Operable security shutters.

1.02 SUBMITTALS

- A. Shop Drawings: Submit complete shop drawings for fabrication and erection, including plans, elevations, and large scale details of typical sections and connections.
- B. Selection Samples: For initial selection of colors and textures, submit manufacturer's color charts consisting of actual product pieces, showing full range of colors and textures available.

1.03 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Obtain required products from a single manufacturer.
 - 1. Accessories: Provide accessory items only as produced or recommended by manufacturer of primary products.
- B. Mock-up: Prior to installation of work of this section, erect sample at location directed by or acceptable to the architect, using specified materials and illustrating range of color, texture, and workmanship to be expected in the completed work. Once mock-up has been approved by the architect, retain until the work has been completed and accepted.
 - 1. Configuration: As indicated on the drawings.
 - 2. Acceptable mock-up may be incorporated into the final work.
- C. Preinstallation Conference: Prior to installation of work of this section, conduct a meeting at the project site to discuss quality assurance requirements. In addition to the contractor and the installer, arrange for attendance of the following:
 - 1. Other installers affected by the work of this section.
 - 2. The architect.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. High Density Polyethylene (HDPE) Panels.

- B. Aluminum Extruded Tubing, Bars and Shapes: Alloy 6063-T52 and 6063-T832 meeting ASTM B 221. Aluminum Structural Angles and Tees: Alloy 6061-T6 meeting ASTM B 221. Stainless Steel Fasteners: Type 304 (18-8).
 - C. The design is based on the following product: "HDPE" Panels; Laminations Inc., P.O. Box 2021, Scranton, PA, 18501; (717) 343-7921.
 - D. Miscellaneous fittings as required to secure shutters in the closed position.
- 2.02 FABRICATION
- A. General: Use materials of size and thickness shown or, if not shown, of required size and thickness to produce strength and durability in finished product.
 - B. Operable Security Shutters:
 1. Provide pulley system, stainless steel cable and counterweights to result in a fully operational shutter. Provide fittings as required to lock shutters in closed position. Architect shall approve of pulley system and locking mechanisms through shop drawing process.
 2. Colors: As selected by the architect from manufacturer's standards after award of contract.
 3. Substitutions: Comparable products of other manufacturers will be considered under standard substitution procedures.
 - C. Tolerances: Fabricate to within the following tolerances:
 1. Flatness of HDPE panels: Plus or minus 1/8 inch in 10 feet.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Inspect substrates and conditions under which the work of this section will be performed, and verify that installation properly may commence. Do not proceed with the work until unsatisfactory conditions have been resolved fully.

3.02 INSTALLATION

- A. General: Comply with requirements as shown or specified except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.
- B. Counterweights:

1. After installation of security shutters, determine amount of counterweights required for each panel. Counterweights shall be installed in manner indicated on drawings.
- C. Tolerances: Install products of this section to within the following tolerances:
1. Width of vertical and horizontal joints between HDPE panels shall be plus or minus 1/16 inch overall.
 2. Width of vertical joints between security shutters and columns shall be plus or minus 1/8 inch overall.
- 3.03 ADJUSTING
- A. Final Adjustments: Upon achieving substantial completion of the work, adjust all operable components to ensure that they are properly installed and functioning smoothly. Replace any component which cannot be adjusted for proper operation.
- 3.04 CLEANING
- A. Upon completion, clean all surfaces which have become soiled or coated as a result of work of this section, using proper methods which will not scratch or otherwise damage finished surfaces.
1. For cleaning, use only products and techniques acceptable to manufacturer of products being cleaned.
- 3.05 PROTECTION
- A. General: Institute protective procedures and install protective materials as required to ensure that work of this section will be without damage or deterioration at substantial completion.

END OF SECTION