SECTION **06 40 23 - INTERIOR ARCHITECTURAL WOODWORK**

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior standing and running trim for transparent finish.
2. Interior frames and jambs for transparent finish.
3. Miscellaneous materials.
4. Shop finishing.

B. Related Requirements:

1. Section 06 10 00 "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing interior architectural woodwork that are concealed within other construction before interior architectural woodwork installation.
2. Section 062023 "Interior Finish Carpentry" for interior carpentry exposed to view that is not specified in this Section.

1.2 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections, to ensure that interior architectural woodwork can be supported and installed as indicated.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data:

1. Anchors.
2. Adhesives.
3. Shop finishing materials.

B. Wood-Preservative Treatment:

1. Include data and warranty information from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.
2. Indicate type of preservative used and net amount of preservative retained.

3. Include chemical-treatment manufacturer's written instructions for finishing treated material and manufacturer's written warranty.

C. Waterborne Treatments: For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

D. Shop Drawings:

1. Include the following:

a. Dimensioned plans, elevations, and sections.
b. Attachment details.

2. Show large-scale details.
3. Show locations and sizes of furring, blocking, and hanging strips, including blocking and reinforcement concealed by construction and specified in other Sections.

E. Samples: For each exposed product and for each shop-applied color and finish specified.

1. Size:

a. Panel Products: 12 inches by 12 inches (300 mm by 300 mm).
b. Lumber Products: Not less than 5 inches (125 mm) wide by 12 inches (300 mm) long, for each species and cut, finished on one side and one edge.

F. Samples for Initial Selection: For each type of shop-applied exposed finish.

1. Size:

a. Panel Products: 12 inches by 12 inches (300 mm by 300 mm).
b. Lumber Products: Not less than 5 inches (125 mm) wide by 12 inches (300 mm) long, for each species and cut, finished on one side and one edge.

G. Samples for Verification: For the following:

1. Lumber for Transparent Finish: Not less than 5 inches (125 mm) wide by 12 inches (300 mm) long for each species and cut, finished on one side and one edge.
2. Veneer Leaves: Representative of and selected from flitches to be used for transparent-finished interior architectural woodwork.

a. Finish one-half of exposed surface.

1.5 INFORMATIONAL SUBMITTALS

A. Product Certificates: For the following:

1. Composite wood products.
2. Adhesives.

B. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Build mockups of typical interior architectural woodwork as shown on Drawings.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Owner specifically approves such deviations by Change Order.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with the Architectural Woodwork Standards, Section 2.

B. Do not deliver interior architectural woodwork until painting and similar finish operations that might damage woodwork have been completed in installation areas.

C. Store woodwork in installation areas or in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1. Handle and store fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions.

1.8 FIELD CONDITIONS

A. Environmental Limitations without Humidity Control: Do not deliver or install interior architectural woodwork until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels designed for building occupants for the remainder of the construction period.

B. Environmental Limitations with Humidity Control: Do not deliver or install interior architectural woodwork until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 20 and 50 percent during the remainder of the construction period.

C. Field Measurements: Where interior architectural woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings.

1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being concealed by construction, and indicate measurements on Shop Drawings.

D. Established Dimensions: Where interior architectural woodwork is indicated to fit to other construction, establish dimensions for areas where woodwork is to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Rated Frames: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated on Drawings, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.

1. Smoke- and Draft-Control Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing in accordance with UL 1784 and installed in compliance with NFPA 105.

B. Fire-Rated, Borrowed-Lite Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing in accordance with NFPA 257 or UL 9.

2.2 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH

A. Architectural Woodwork Standards Grade: Custom.

B. Hardwood Lumber:

1. Wood Species and Cut:
2. Species: Maple.
3. Cut: Quarter cut/quarter sawn.
4. Wood Moisture Content: 4 to 9 percent.
5. Provide split species on trim that faces areas with different wood species, matching each face of woodwork to species and cut of finish wood surfaces in areas finished.

    a. For veneered base, use hardwood lumber core, glued for width.

6. For base wider than available lumber, glue for width. Do not use veneered construction.
7. For rails thicker than available lumber, use veneered construction. Do not glue for thickness.

2.3 INTERIOR WOOD STAIRS AND RAILINGS

A. Architectural Woodwork Standards Grade: Custom.

B. Wood for Transparent Finish:

1. Species and Cut:
   a. Risers: Hard maple, plain sawn..
   b. Treads: Hard maple, plain sawn..
   c. Railings: Hard maple, plain sawn..

2. Wood Moisture Content: 4 to 9 percent.

C. Rough Carriage Stairs:

1. Laminated veneer lumber, made with an exterior-type adhesive complying with ASTM D2559, and with the following allowable design values as determined in accordance with ASTM D5456:

2. Wood Grade: No. 2, kiln-dried to 15 percent maximum moisture content.

   a. Acceptable Species:

      1) Hem-fir (north).
      2) Southern pine.
      3) Douglas fir-larch.
      4) Douglas fir-larch (north).
      5) Spruce-pine-fir.
      6) Hem-fir.
      7) Douglas fir-south.
      8) Spruce-pine-fir (south).

D. Finishes for Stair Parts:

1. Treads: Transparent
2. Risers: Transparent
3. Handrails: Transparent.
4. Scotia, Cove, and Other Moldings: Transparent.

E. Handrail Brackets: Cast nickel-silver with wall flange drilled and with support arm for screwing to underside of rail. Size to provide 1-1/2-inch (38-mm) clearance between handrail and face of wall.

F. Handrail/Bumper Rail Brackets: Pairs of extruded-aluminum channels: one for fastening to back of rail and one for fastening to face of wall, assembled in overlapping fashion and fastened together at top and bottom with self-tapping screws. Size to provide 1-1/2-inch (38-mm) clearance between handrail and wall.

2.4 HARDWOOD SHEET MATERIALS

A. Composite Wood Products: Provide materials that comply with requirements of the Architectural Woodwork Standards for each type of interior architectural woodwork and quality grade specified unless otherwise indicated.
   1. Medium-Density Fiberboard (MDF): ANSI A208.2, Grade 130.

2. Softwood Plywood: DOC PS 1, medium-density overlay.
3. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1.

2.5 PRESERVATIVE-TREATED-WOOD MATERIAL

A. Preservative-Treated-Wood Materials: Provide with water-repellent preservative treatment complying with AWPA N1 (dip, spray, flood, or vacuum-pressure treatment).

1. Preservative Chemicals: 3-iodo-2-propynyl butyl carbamate (IPBC)[, combined with a compatible EPA-registered insecticide.
2. Use chemical formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated material from untreated material.

B. Extent of Preservative-Treated Wood Materials: Treat interior architectural woodwork in contact with concrete or masonry.

1. Items fabricated from the following wood species need not be treated:

a. Redwood
b. Western red cedar
c. White oak.
d. African mahogany.
e. Honduras mahogany.
f. Ipe.
g. Dark red meranti.
h. Teak.

2.

2.6 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims, and Nailers: Softwood or hardwood lumber kiln-dried to less than 15 percent moisture content.

1. Preservative Treatment: Provide softwood lumber treated by pressure process, AWPA U1; Use Category UC3b.

a. Provide where in contact with concrete or masonry.
b. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
c. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
d. Mark lumber with treatment quality mark of an inspection agency approved by the American Lumber Standards Committee's (ALSC) Board of Review.

B. Provide self-drilling screws for metal-framing supports, as recommended by metal-framing manufacturer.

C. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage.

1. Provide metal expansion sleeves or expansion bolts for post-installed anchors.
2. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

D. Installation Adhesive: Product recommended by fabricator for each substrate for secure anchorage.

2.7 FABRICATION

A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.

B. Fabricate interior architectural woodwork to dimensions, profiles, and details indicated.

1. Ease edges to radius indicated for the following:

a. Edges of Solid-Wood (Lumber) Members: 1/16 inch (1.5 mm) unless otherwise indicated.
b. Edges of Rails and Similar Members More Than 3/4 Inch (19 mm) Thick: 1/8 inch (3 mm).

C. Stairs: Cut rough carriages to accurately fit treads and risers.

1. Glue treads to risers, and glue and nail treads and risers to carriages.
2. House **wall and face** stringers, and glue and wedge treads and risers.
3. Fabricate stairs with treads and risers no more than 1/8 inch (3 mm) from indicated position and no more than 1/16 inch (1.5 mm) out of relative position for adjacent treads and risers.

2.8 SHOP PRIMING

A. Preparations for Finishing: Comply with the Architectural Woodwork Standards for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing interior architectural woodwork, as applicable to each unit of work.

B. Interior Architectural Woodwork for Opaque Finish: Shop prime with one coat of wood primer as specified in Section 099123 "Interior Painting."

C. Interior Architectural Woodwork for Transparent Finish: Shop-seal concealed surfaces with required pretreatments and first coat of finish as specified in Section 099300 "Staining and Transparent Finishing."

2.9 SHOP FINISHING

A. Finish interior architectural woodwork with transparent finish at fabrication shop. Defer only final touchup, cleaning, and polishing until after installation.

B. Preparation for Finishing: Comply with Architectural Woodwork Standards, Section 5 for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing interior architectural woodwork, as applicable to each unit of work.

1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of interior architectural woodwork. Apply two coats to end-grain surfaces.

C. Transparent Finish:

1. Architectural Woodwork Standards Grade: Custom.
2. Finish System:

a. 1: Lacquer, Nitrocellulose.

3. Sheen: Satin, 31-45 gloss units measured on 60-degree gloss meter in accordance with ASTM D523.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition interior architectural woodwork to humidity conditions in installation areas for not less than 72 hours prior to beginning of installation.

B. Before installing interior architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming of concealed surfaces.

3.2 INSTALLATION

A. Grade: Install interior architectural woodwork to comply with same grade as item to be installed.

B. Assemble interior architectural woodwork and complete fabrication at Project site to the extent that it was not completed during shop fabrication.

C. Install interior architectural woodwork level, plumb, true in line, and without distortion.

1. Shim as required with concealed shims.
2. Install level and plumb to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).

D. Scribe and cut interior architectural woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

E. Preservative-Treated Wood: Where cut or drilled in field, treat cut ends and drilled holes in accordance with AWPA M4.

F. Fire-Retardant-Treated Wood: Install fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork.

G. Anchor interior architectural woodwork to anchors or blocking built in or directly attached to substrates.

1. Secure with countersunk, concealed fasteners and blind nailing.
2. Use fine finishing nails for exposed fastening, countersunk and filled flush with interior architectural woodwork.
3. For shop-finished items, use filler matching finish of items being installed.

H. Standing and Running Trim:

1. Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible.
2. Do not use pieces less than 60 inches (1500 mm) long, except where shorter single-length pieces are necessary.
3. Scarf running joints and stagger in adjacent and related members.
4. Fill gaps, if any, between top of base and wall with plastic wood filler; sand smooth; and finish same as wood base if finished
5. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches (3 mm in 2400 mm).

I. Stairs: Securely anchor carriages to supporting substrates.

1. Install stairs with treads and risers no more than 1/8 inch (3 mm) from indicated position.
2. Secure with countersunk, concealed fasteners and blind nailing.
3. Use fine finishing nails for exposed fastening, countersunk and filled flush with wood surface.

J. Railings:

1. Install rails with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) variation from a straight line.
2. Stair Rails: Glue and dowel or pin balusters to treads and railings, and railings to newel posts.

    a. Secure with countersunk, concealed fasteners and blind nailing.
    b. Use fine finishing nails for exposed fastening, countersunk and filled flush with wood surface.

3. Wall Rails: Support rails on wall brackets securely fastened to wall framing.

3.3 FIELD QUALITY CONTROL

3.4 REPAIR

A. Repair damaged and defective interior architectural woodwork, where possible, to eliminate functional and visual defects**.**

B. Where not possible to repair, replace defective woodwork.

C. Shop Finish: Touch up finishing work specified in this Section after installation of interior architectural woodwork.

1. Fill nail holes with matching filler where exposed.
2. Apply specified finish coats, including stains and paste fillers if any, to exposed surfaces where only sealer/prime coats are shop applied.

3.5 CLEANING

A. Clean interior architectural woodwork on exposed and semiexposed surfaces.

END OF SECTION 06 40 23

SECTION **10 73 00 - ALUMINUM CANOPY**

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes: Helios Canopy.

B. Related Requirements: Division 1 – General Requirements

1.2 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

B. American Welding Society (AWS):
   i. Standard D1.2 – Structural Welding Code – Aluminum

C. American Architectural Manufacturers Association (AAMA):
   i. Aluminum finishes AAMA 2603 Powder Coat
   ii. Aluminum finishes AAMA 2605 Kynar
   iii. Aluminum finishes AAMA 611 Anodize

1.3 SUBMITTALS

A. Shop Drawings: Indicate size, material and finish. Include plan elevation pages to clearly outline canopy locations. Include installation procedures, details of joints, attachments and clearances. Provide lead time for product and note possible conflicts with standard line.

B. Color charts showing manufacturer's full range of colors from standard line.

1.4 Warranty

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal canopies that fail in materials or workmanship within specified warranty period.

   i. Warranty Period: One year from date of Substantial Completion.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Architectural Fabrication, Inc. – Helios Canopy. Architectural Fabrication, Inc. Or Equal.

B. Substitutions are acceptable assuming they comply with these specifications, are submitted based on Section 01 25 00 – Substitution Requirements.

2.2 MATERIALS

A. Framing: Gutter fascia, tube, angles: 6063-T5 alloy extruded aluminum

B. Decking: Interlocking panels, extruded aluminum or sheet metal

C. Hanger Rods: Zinc plated steel and powder coat (Prime and paint are not acceptable)

D. Connections: Wall plates and canopy mounting brackets are to be aluminum.

E. Hardware and Fasteners: Nuts, bolts, washers, clevis pins, screws, anchors and pipe spacers to be zinc plated or galvanized steel required to suit application and per pre-engineered canopy load requirements.

F. Flashing: Shall be minimum 0.040-inch aluminum, fabricated to prevent leakage and sealed with Novaflex metal roof sealant in clear or color match. Other equivalent sealant is acceptable.

G. Finish: Powder coat finish per ASTM D 3451, complying with finish manufacturer's written instructions for surface preparation including pretreatment, application, baking and minimum dry film thickness. Color to be selected from standard color line.

PART 3 – EXECUTION

3.1 FABRICATION

A. Fabricate and preassemble canopies in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

3.2 INSTALLATION

A. Install canopies per manufacturer's written instructions and as indicated on drawings.

B. Locate and place canopies level, plumb and at indicated alignment with adjacent work.

C. Use concealed anchors where possible.

D. Repair damaged finishes so no evidence remains of corrective work. Return items to the factory that cannot be refinished in the field. Make required alterations and refinish entire unit or provide new units.

E. Protect galvanized and nonferrous-metal surfaces from corrosion or galvanic action by applying a coating of bituminous paint or elastomeric coating on surfaces that will be in contact with concrete, masonry or dissimilar metals.

END OF SECTION

SECTION **10 7 516 - FLAGPOLES**

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes ground-set flagpoles made from aluminum.

B. Owner-Furnished Material: Flags.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, operating characteristics, fittings, accessories, and finishes for flagpoles.

1.3 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For flagpoles to include in operation and maintenance manuals.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Spiral wrap flagpoles with heavy paper and enclose in a hard fiber tube or other protective container.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain flagpoles as complete units, including fittings, accessories, bases, and anchorage devices, from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Flagpole assemblies, including anchorages and supports, to withstand design loads indicated within limits and under conditions indicated.

1. Wind Loads: Determine according to NAAMM FP 1001. Basic wind speed for Project location is 115 mph
2. Base flagpole design on polyester flags of maximum standard size suitable for use with flagpole or flag size indicated, whichever is more stringent.

2.3 ALUMINUM FLAGPOLES

A. Aluminum Flagpoles: Entasis-tapered flagpoles fabricated from seamless extruded tubing complying with ASTM B241/B241M, Alloy 6063, with a minimum wall thickness of 3/16 inch (4.8 mm).

1. Concord American Flagpole, or equal.

B. Exposed Height 30 feet (9 m).

C. Construct flagpoles in one piece if possible. If more than one piece is necessary, comply with the following:

1. Fabricate shop and field joints without using fasteners, screw collars, or lead calking.
2. Provide flush hairline joints using self-aligning, snug-fitting, internal sleeves.

D. Metal Foundation Tube: Manufacturer's standard corrugated-steel foundation tube, 0.060-inch (1.52-mm) wall thickness with 3/16-inch (4.8-mm) steel bottom plate and support plate; 3/4-inch- (19-mm-) diameter, steel ground spike; and steel centering wedges welded together. Galvanize foundation tube after assembly. Furnish loose hardwood wedges at top of foundation tube for plumbing pole.

1. Flashing Collar: Same material and finish as flagpole.

E. Sleeve for Aluminum Flagpole: 16 gauge stel tube foundation sleeve, made to fit flagpole, for casting into concrete foundation.

1. Flashing Collar: Same material and finish as flagpole.

F. Cast-Metal Shoe Base: Made from aluminum with same finish and color as flagpole for anchor-bolt mounting; furnish with anchor bolts.

1. Furnish ground spike.

2.4 FITTINGS

A. Finial Ball: Flush-seam ball, sized as indicated or, if not indicated, to match flagpole-butt diameter.

1. 0.063-inch (1.6-mm) spun aluminum with gold anodic finish.

B. External Halyard: Ball-bearing, nonfouling, revolving truck assembly of cast metal with continuous 5/16-inch- (8-mm-) diameter, braided polypropylene halyard<Insert type> and 9-inch (228-mm) cast-metal cleats with fasteners. Finish exposed metal surfaces to match flagpole.

1. Halyards and Cleats: Two at each flagpole.
2. Cleat Covers: Cast metal, finished to match flagpole, secured with cylinder locks.
3. Halyard Covers: 2-inch (50-mm) channel, 60 inches (1500 mm) long, finished to match flagpole.

4. Halyard Flag Snaps: Chromium-plated bronze swivel snap hooks with neoprene or vinyl covers. Furnish two per halyard.

2.5 MISCELLANEOUS MATERIALS

A. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M.

B. Drainage Material: Crushed stone, or crushed or uncrushed gravel; coarse aggregate.

C. Sand: ASTM C33/C33M, fine aggregate.

D. Elastomeric Joint Sealant: Single-component neutral-curing silicone joint sealant complying with requirements in Section 079200 "Joint Sealants."

E. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

2.6 ALUMINUM FINISHES

A. Natural Satin Finish: AA-M32, fine, directional, medium satin polish; buff complying with AA-M20; seal aluminum surfaces with clear, hard-coat wax.

PART 3 - EXECUTION

3.1 PREPARATION

A. Sleeves: Locate and secure sleeves in forms by bracing to reinforcement and forms.

3.2 FLAGPOLE INSTALLATION

A. General: Install flagpoles where indicated and according to[**Shop Drawings and**] manufacturer's written instructions.

B. Foundation Tube: Place flagpole in tube, seated on bottom plate between steel centering wedges, and install hardwood wedges to secure flagpole in place. Place and compact sand in foundation tube and remove hardwood wedges. Seal top of foundation tube with a 2-inch (50-mm) layer of elastomeric joint sealant and cover with flashing collar.

C. Baseplate: Cast anchor bolts in concrete foundation. Install baseplate on washers placed over leveling nuts on anchor bolts and adjust until flagpole is plumb. After flagpole is plumb, tighten retaining nuts and fill space under baseplate solidly with nonshrink, nonmetallic grout. Finish exposed grout surfaces smooth and slope 45 degrees away from edges of baseplate.

END OF SECTION - 10 75 16