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**SECTION 12 21 13****HORIZONTAL LOUVER BLINDS****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes the following types of blinds and accessories:
  - 1. Horizontal louver blinds with polymer slats.

**1.3 SUBMITTALS**

- A. Product Data: For each type of product indicated. Include styles, material descriptions, construction details, dimensions of individual components and profiles, features, finishes, and operating instructions.
- B. Shop Drawings: Show location and extent of horizontal louver blinds. Include elevations, sections, details, and dimensions not shown in Product Data. Show installation details, mountings, attachments to other Work, operational clearances, and relationship to adjoining work.
- C. Samples for Verification: For the following products, prepared on Samples from the same material to be used for the Work.
  - 1. Louver Slat: Not less than 12 inches long.
- D. Window Treatment Schedule: Include horizontal louver blinds in schedule using same room designations indicated on Drawings.
- E. Product Certificates: For each type of horizontal louver blind product, signed by product manufacturer.
- F. Maintenance Data: For horizontal louver blinds to include in maintenance manuals. Include the following:
  - 1. Methods for maintaining horizontal louver blinds and finishes.
  - 2. Precautions about cleaning materials and methods that could be detrimental to finishes and performance.
  - 3. Operating hardware.

## 1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain horizontal louver blinds through one source from a single manufacturer.
- B. Fire-Test-Response Characteristics: Provide horizontal louver blinds with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
  - 1. Flame-Resistance Ratings: Passes NFPA 701.
- C. Corded Window Covering Product Standard: Provide horizontal louver blinds complying with WCMA A 100.1.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver blinds in factory packages, marked with manufacturer and product name, and location of installation using same room designations indicated on Drawings and in a window treatment schedule.

## 1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install horizontal louver blinds until construction and wet and dirty finish work in spaces, including painting, is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Field Measurements: Where horizontal louver blinds are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operable glazed units' operation hardware throughout the entire operating range. Notify Architect of discrepancies. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

## PART 2 - PRODUCTS

### 2.1 HORIZONTAL LOUVER BLINDS, POLYMER SLATS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Comfortex Window Fashions.
  - 2. Hunter Douglas.
  - 3. Levolor.
  - 4. Springs Window Fashions Division, Inc.

- B. Slats: Lead-free, UV-stabilized, integrally colored, opaque, permanently flexible, extruded PVC or polymer/wood alloy that will not crack or yellow; antistatic, dust-repellent treated; with manufacturer's standard profile.
  - 1. Width: 2 inches.
  - 2. Spacing: Manufacturer's standard.
  - 3. Slat Finish: Color as indicated on Drawings.
- C. Headrail: Formed steel or extruded aluminum; long edges returned or rolled; fully enclosing operating mechanisms on three sides and ends.
- D. Bottom Rail: Manufacturer's standard; with enclosed and protected ladders and tapes to prevent contact with sill.
- E. Tilt Control: Consisting of enclosed worm gear mechanism and linkage rod, for the following operation.
  - 1. Tilt Operation: Cord-operated tilter.
- F. Lift Operation: Manual, cord lock; locks pull cord to stop blind at any position in ascending or descending travel.
- G. Mounting: As indicated on Drawings, mounting permitting easy removal and replacement without damaging blind or adjacent surfaces and finishes; with spacers and shims required for blind placement and alignment indicated.
  - 1. Provide intermediate support brackets if end support spacing exceeds spacing recommended by manufacturer for weight and size of blind.
- H. Colors, Textures, Patterns, and Gloss: As selected by Architect from manufacturer's full range.

## 2.2 HORIZONTAL LOUVER BLIND FABRICATION

- A. Concealed Components: Noncorrodible or corrosion-resistant-coated materials.
  - 1. Lift-and-Tilt Mechanisms: With permanently lubricated moving parts.
- B. Unit Sizes: Obtain units fabricated in sizes to fill window and other openings as follows, measured at 74 deg F:
  - 1. Blind Units Installed between (inside) Jamb: Width equal to 1/4 inch per side or 1/2 inch total, plus or minus 1/8 inch, less than jamb-to-jamb dimension of opening in which each blind is installed. Length equal to 1/4 inch, plus or minus 1/8 inch, less than head-to-sill dimension of opening in which each blind is installed.
- C. Installation Brackets: Designed for easy removal and reinstallation of blind, for supporting headrail, and operating hardware, and for hardware position and blind mounting method indicated.

- D. Installation Fasteners: No fewer than two fasteners per bracket, fabricated from metal noncorrosive to blind hardware and adjoining construction; type designed for securing to supporting substrate; and supporting blinds and accessories under conditions of normal use.
- E. Color-Coated Finish:
  - 1. Metal: For components exposed to view, apply manufacturer's standard baked finish complying with manufacturer's written instructions for surface preparation including pretreatment, application, baking, and minimum dry film thickness.
- F. Component Color: Provide rails, cords, ladders, and exposed-to-view metal and plastic matching or coordinating with slat color, unless otherwise indicated.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 HORIZONTAL LOUVER BLIND INSTALLATION**

- A. Install blinds level and plumb and aligned with adjacent units according to manufacturer's written instructions and located so exterior louver edges in any position are not closer than 2 inches to interior face of glass. Install intermediate support as required to prevent deflection in headrail. Allow clearances between adjacent blinds and for operating glazed opening's operation hardware, if any.
- B. Jamb Mounted: Install headrail flush with face of opening jamb and head.
- C. Install horizontal louver blinds at window in Bathroom.

#### **3.3 ADJUSTING**

- A. Adjust horizontal louver blinds to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

#### **3.4 CLEANING AND PROTECTION**

- A. Clean blind surfaces after installation, according to manufacturer's written instructions.

- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that horizontal louver blinds are without damage or deterioration at time of Substantial Completion.
- C. Replace damaged blinds that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

END OF SECTION

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**SECTION 12 35 53****LABORATORY CASEWORK****PART 1 – GENERAL****1.01 REFERENCES**

- A. The following is a list of standards which may be referenced in this section:
1. American National Standards Institute (ANSI):
    - a. A135.4, Basic Hardboard.
    - b. Z358.1, Emergency Eyewash and Shower Equipment.
  2. Americans with Disabilities Act (ADA).
  3. APA-The Engineered Wood Association (APA): Grades and Specifications.
  4. Architectural Woodwork Institute (AWI): Architectural Woodwork Quality Standards.
  5. ASTM International (ASTM):
    - a. A167, Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
    - b. A507, Standard Specification for Steel, Sheet and Strip, Alloy, Hot-Rolled and Cold-Rolled, Drawing Quality.
    - c. A666, Standard Specification for Austenitic Stainless-Steel Sheet, Strip, Plate, and Flat Bar.
    - d. C1048, Standard Specification for Heat-Treated Flat Glass Kind HS, Kind FT Coated and Uncoated Glass.
    - e. D1193, Standard Test for Reagent Water.
    - f. E84, Standard Test Method for Surface Burning Characteristics of Building Materials.
  6. National Electrical Manufacturer's Association (NEMA):
    - a. LD 3, High Pressure Decorative Laminates (HPDL).
    - b. WD 1, General Requirements for Wiring Devices.
  7. National Institute of Standards and Technology (NIST), Product Standard Section: PS 1, Construction and Industrial Plywood.
  8. National Fire Codes-National Fire Protection Association (NFPA):
    - a. 30, Flammable and Combustible Liquids, Section 4-3.
    - b. 45, Fire Protection for Laboratories Using Chemicals.
    - c. 70, National Electrical Code (NEC).
  9. Occupational Safety and Health Administration (OSHA): General Industry Standards, Section 1910.106.

**1.02 SUBMITTALS**

- A. Action Submittals:



1. Shop Drawings: Completely describe and illustrate design features, materials, fabrication, and casework layout including rough-in details for plumbing, electrical, and ventilation connections.
    - a. Key units to Contract Document designations.
    - b. Provide details and dimensions not controlled by job conditions.
    - c. Show required field measurements beyond manufacturer's control.
    - d. Establish and maintain applicable rough-in and field dimensions.
    - e. Descriptive literature and manufacturer's specifications of casework, hardware, service fixtures, and specialty items.
    - f. Brochures, catalogs, installation instructions, and operations and maintenance manuals.
    - g. Clearly mark with Contract Document designation each proposed item in manufacturer's literature.
    - h. Coordinate Shop Drawings with other trades.
      1. Seismic anchorage and bracing drawings and data sheets, as required by manufacturer.
      2. Samples:
        - a. Finished color Samples of each finish proposed by casework manufacturer.
        - b. Sample unit, complete with hardware, including locks, accessories, and top for Owner's inspection and 1 month's use. Unit, except top, may be used on Project.
- B. Informational Submittals:
1. Seismic anchorage and bracing calculations as required by code and casework manufacturer.
  2. Qualifications of manufacturer and installation lead person.

### 1.03 QUALITY ASSURANCE

- A. Standards:
1. Casework: Conform to "Architectural Woodwork Quality Standards" of Architectural Woodwork Institute (AWI), Premium grade.
- B. Casework Manufacturer Qualifications:
1. Reputation for doing satisfactory work on time.
  2. Successful completion of comparable work.
  3. Specialization in design and manufacture of plastic laminate casework or furnishings for scientific laboratories.
  4. Operation of adequate size factory devoted to manufacture of plastic laminate laboratory casework or furnishings.
  5. Minimum 5 years' experience in manufacture of quality and type of laboratory casework and furnishings specified.
  6. Warranty is for 3 years from date of installation.

**1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Do not deliver materials to Project Site until excessive moisture is out of building for at least 10 days.
- B. Store casework inside in dry and well-ventilated areas, and do not subject to extreme changes in temperature or humidity.
- C. Coordinate delivery and installation with Engineer. Owner may wish to inspect items in Contractor's presence to verify condition.

**PART 2 – PRODUCTS****2.01 CASEWORK MANUFACTURERS**

- A. Plastic laminate faced casework of the following manufacturers, meeting these Specifications, may be used on this Project:
  - 1. Laboratory Design & Supply, Buford, Ga. Phone 770932-1118
  - 2. Campbell Rhea, Paris, TN.
  - 3. Nolen Products, Knoxville, TN.
  - 4. LSI Corp., Minneapolis, MN.

**2.02 CASEWORK MATERIALS**

- A. Plywood: APA exterior type conforming to NIST, Product Standard Section, PS 1.
  - 1. Thickness: Minimum 3/4 inch.
  - 2. Grade: No knots or voids present on surfaces. Use marine grade for cabinet bases or pressure treated wood.
- B. Hardboard:
  - 1. Wood fibers and resin binder molded under high pressure.
  - 2. Thickness: Minimum 1 – 1/4 inch.
  - 3. Premium grade.
  - 4. Tensile Strength: 3,500 psi.
  - 5. Shear Strength: 4,500 psi.
  - 6. ANSI A135.4, Type II, Surface 2, Finish A, Design A.
- C. Plastic Laminate:
  - 1. High-pressure plastic laminate for Special Cabinets defined in Article Casework Fabrication of this section, excluding counter tops.
  - 2. Thickness: 0.051 plus or minus 0.005 inch.
  - 3. Stain Resistance: Show essentially no effect for materials I through 23 and moderate effect for materials 24 through 29 when tested according to NEMALD3.
  - 4. Finish and Color: Submit to owner for selection.

5. Manufacturer and Product: Wilsonart; Tufsurfl.

D. Edge Banding:

1. Minimum 3-mm thick polyvinyl chloride for drawer and door fronts and cabinet box.
2. 1-mm edging on all other edges.
3. Color: Selected by Engineer from manufacturer's standard colors.

E. Hardware:

1. Door Locks: BHMA A156.11, E07121; keyed to match existing locks.
2. Drawer Locks: BHMA A156.11, E07041; keyed to match existing locks.
3. Hinges: Concealed type, minimum 120-degree opening with spring closer.
4. Pulls: Manufacturer's standard semi flush type of molded ABS plastic in color selected by Engineer from manufacturer's standard colors.
5. Shelf Fasteners: Metal or plastic design providing rigid and true shelf alignment.
  - Metal: Dull chrome finish.
  - Plastic: Match cabinet interior color.
6. Drawer Slides: Epoxy coated.
  - Metal designed to mate with drawer slides in cabinets.
  - Provide smooth sliding action.
  - Load Support on Extended Drawer: 150 pounds in file drawers, 75 pounds in drawers 6 inches and less in depth, and 100 pounds in other drawers.

F. Accessories: Manufacturer's standard catches, grommets, and other accessories and trim required to complete installation in secure and rigid manner. Finish to match other exposed hardware.

G. Adhesives: Manufacturer's standard water-resistant adhesives.

H. Counter Tops:

1. Epoxy Resin at Lab Area:
  - a. Molded, modified, solid epoxy resin.
  - b. Formulated to produce smooth, nonabsorbent, chemical-, heat-, and shock-resistant surface.
  - c. Homogeneous in color and texture.
  - d. Thickness: Minimum 1 inch.
  - e. Drip groove under front edge.
  - f. Integral two-piece glued backsplash for full length of adjoining walls.
  - g. Color: **Black**
  - h. Manufacturers and Products:
    - 1) Durcon; Durcon Resin.
    - 2) Laboratory Tops; Epoxy Resin.
    - 3) Prime; Prime-Resin.
2. Plastic Laminate at Work Station.
  - a. Finish and Color: As shown in Interior Finish Schedule.

- I. Backsplashes, Backsplash Returns, Splash Curbs (SCB), Reagent Shelves, and Reagent Shelf Supports: Same material as adjacent counter top.
- J. Electrical installation and materials shall comply with the requirements of Electrical Division.

### **2.03 LABORATORY EPOXY RESIN SINK LSK-I (IF SHOWN ON PLANS)**

- A. Description:
  - 1. Single Compartment: One-piece, molded epoxy resin with coved corners and corner outlet.
  - 2. Size: 24 inches long by 16 inches wide by 8 inches deep interior dimensions.
  - 3. Epoxy resin sink drain outlet complete with removable strainer, stopper, and 1 – 1/2-inch tailpiece.
- B. Manufacturers and Products: Drop-In Type Sink: Durcon; Model No. D-55.

### **2.04 LABORATORY SERVICE FIXTURES**

- A. General: Protect chrome plumbing service fixtures with white epoxy enamel coating applied by manufacturer's electrostatic powder coating process.
- B. Deck Mounted Mixing Faucet LP-I:
  - 1. Swing gooseneck with 8-inch spread, vacuum breaker, and removable aerator.
  - 2. Index for hot and cold water.
  - 3. Manufacturers and Products:
    - a) Chicago; Model No. 930 with 8-inch spread.
    - b) Water Saver; Model No. L-4I2-8VB.

### **2.05 CASEWORK FABRICATION**

- A. Construct casework of plywood covered with laminated plastic sheets on both surfaces.
- B. Furnish manufacturer's standard modular units conforming as closely as possible to dimensions shown on Drawings, or specially made casework units where standard sized units do not conform to dimensions and configurations shown on Drawings.
- C. Construct casework with face screwed fasteners. Do not depend on mechanical fastening, gluing, or screwing of core edges for strength.
- D. Excluding countertops, fabricate cabinet surfaces (fronts, backs, sides, tops, bottoms, shelves, doors, drawer fronts, bases, and fillers) with minimum 3/4-inch thick plywood covered with plastic laminate on both sides bonded by polyester resin at high pressure and temperature. Seal and protect cabinet and drawer surfaces from water intrusion. Drawer and door fronts to be covered with Chemical Resistant laminate. Drawer bottoms are to be wood-laminate is not

acceptable. All backs are to be removable; 3-mm edge on drawers, doors and cabinet box; 1-mm edge on all other edges.

- E. Radius exposed corners at least 1-1/4 inch.
- F. Protect edges from water intrusion including edges not exposed to view, e.g. resting on base, sitting on floor, standing behind cabinet. Install vinyl edges on exposed edges of cabinets, doors, and drawers. Locate joints in vinyl edges where least noticeable. Bond under pressure with waterproof hot melt glue and finish with smooth, radiused edges, and corners.
- G. Cabinet Bases:
  - 1. Design and construct separately from side and back panels to support cabinets rigidly in true alignment.
  - 2. Material: Marine grade exterior plywood or treated wood.
  - 3. Height: 4 inches.
  - 4. Install adjustable leveling feet at each corner and at intermediate points necessary for rigid support.
- H. Backsplashes and Splash Curbs: Field glued.
- I. Access Panels: Removable units opening to pipe space behind cases at knee spaces, balance tables, ends of islands and peninsulas, and elsewhere for access.
- J. Sliding Glass Doors: Frameless type in wall-mounted or double-sided island or peninsula-mounted cases. Framed type for tall storage cabinets and base cabinets.
- K. Cabinet Locks CLK: Doors and drawers where shown on Drawings.
- L. Color: Countertops, fronts, trim, and other exposed surfaces as selected by Engineer from manufacturer's standard colors
- M. Wood Drawers: Construct in accordance with AWI Premium.
- N. Flammable Liquid or Acid Storage Cabinets, F/A:
  - 1. Fabricate in length, width, and height shown on Drawings according to Flammable Liquid or Acid Storage Cabinet Detail.
  - 2. Construct in accordance with regulations:
    - a) OSHA, Section 1910.106.
    - b) NFPA 30, Section 4-3.
  - 3. 1-inch APA exterior grade plywood around, rabbeted joints fastened in two directions with flathead wood screws, and rabbeted overlap of at least 1 inch when two doors are shown on Drawings.
  - 4. Self-closing doors and means of latching.
  - 5. Hinged to hold when subjected to fire.
  - 6. Raised sill in bottom capable of holding 2-inch depth of spilled liquid.
  - 7. Shelf to limit maximum containers capacity to 1 gallon, in accordance

with NFPA 45, Section 7.2.3.  
Label cabinet laminate front "Acids Only".

8. Except for BCV, no penetrations for plumbing, electrical, or other utilities.

### **PART 3 – EXECUTION**

#### **3.01 INSPECTION AND PREPARATION**

- A. Make field measurements of items or conditions affecting casework, equipment, and furnishings.
- B. Examine grounds and supports of casework to assure adequate anchorage, free of foreign material, moisture, and unevenness that would prevent quality casework installation.
- C. Verify that ventilation outlets, service connections, and supports are correct and in proper location.
- D. Identify and correct defects before proceeding with installation.

#### **3.02 INSTALLATION**

- A. Use proper type of anchoring devices for materials encountered.
- B. Install in accordance with manufacturer's instructions.
- C. Except where noted, install in new and ready-to-use condition.
- D. Cut, fit, patch, and provide support where required for proper and complete installation.
- E. Casework:
  - 1. Secure casework in place in true alignment, level, and plumb. Secure casework units to cleats anchored to building structure or wall framing. Install wall-hung cabinets to firmly and rigidly support cabinet weight plus normally expected cabinet content weight.
  - 2. Fasten together adjoining cabinets in an assembly joined at top and bottom of front and back with bolts placed inconspicuously inside cabinets.
  - 3. Close exposed-to-view openings larger than joints with filler of same material and finish as adjacent casework. Secure filler to casework with concealed screws. Use minimum width and number of fillers consistent with need. Except where shown on Drawings, do not use filler panels (FPL) exceeding 6-inch width.
  - 4. Install cabinet front face 3 inches in front of cabinet base face to provide toe space.
- F. Countertops:
  - 1. Install standing height countertop's working surface 36 inches above

finished floor. Install desk height countertop's working surface 30 inches above finished floor.

2. Install level to within 1/16 inch in 10 feet and in largest possible increments.
3. Where not supported by base cabinets or other furnishings, use brackets or other support on minimum 3-foot centers.
4. Make joints with manufacturer-provided cement containing same color and chemical-resistance characteristics as top material. Leave joints smooth and in same plane as top.

G. Laboratory Sinks and Service Fixtures:

1. Install in countertops and cases in manner recommended by manufacturer.
2. Take care to avoid scratches and other damage to cases and countertops.
3. Install ready for connection of services.

H. Furnishings:

1. Provide equipment with connection terminals for plumbing, gas, steam, electrical, ventilation, and refrigeration service connections where required.
2. Where items are supplied without line cords, furnish line cord and plug compatible with electrical service and available outlets.

### 3.03 ADJUSTING AND CLEANING

- A. Adjust hardware and leave in smooth, easy condition. Remove protective maskings. Clean surfaces ready for use. Restore stained or discolored finishes or replace item.
- B. Inspect, adjust, clean, and test service fixtures to assure intended operation.

END OF SECTION