

SECTION 123553.19 - WOOD LABORATORY CASEWORK

Addendum No. 1 – 2.7.A, 2.10.C and D

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. Section Includes:

1. Wood laboratory casework.
2. Filler and closure panels.
3. Laboratory countertops.
4. Tables.
5. Laboratory sinks.
6. Laboratory accessories.

B. Related Requirements:

1. Section 061053 "Miscellaneous Rough Carpentry" for wood blocking for anchoring laboratory casework.
2. Section 115313 "Laboratory Fume Hoods" for fume hoods.

1.3 DEFINITIONS

- A. Concealed Surfaces of Casework: Include sleepers, web frames, dust panels, and other surfaces not usually visible after installation.
- B. Exposed Surfaces of Casework: Surfaces visible when doors and drawers are closed, including bottoms of cabinets more than 48 inches above floor, and visible surfaces in open cabinets or behind glass doors.
  1. Ends of cabinets are defined as "exposed" except ends are defined as "concealed" where installed directly against and completely concealed by walls or other cabinets.
- C. Semiexposed Surfaces of Casework: Surfaces behind opaque doors, such as cabinet interiors, shelves, and dividers; interiors and sides of drawers; and interior faces of doors. Tops of cases 78 inches or more above floor and bottoms of cabinets more than 24 inches but less than 48 inches above floor are defined as "semiexposed."

1.4 COORDINATION

- A. Coordinate layout and installation of framing and reinforcements for support of laboratory casework.
- B. Coordinate installation of laboratory casework with installation of laboratory equipment.

## 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For laboratory casework.
  - 1. Include plans, elevations, sections, and attachments to other work including blocking and reinforcements required for installation.
  - 2. Indicate types and sizes of casework.
  - 3. Indicate manufacturer's catalog numbers for casework.
  - 4. Show fabrication details, including types and locations of hardware.
  - 5. Indicate locations and types of service fittings.
  - 6. Include details of exposed conduits, if required, for service fittings.
  - 7. Indicate locations of and clearances from adjacent walls, doors, windows, other building components, and laboratory equipment.
  - 8. Include coordinated dimensions for laboratory equipment specified in other Sections.
- C. Samples: For casework finishes and materials requiring color selection.

## 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer.
- B. Product Test Reports:
  - 1. Casework: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating compliance of laboratory casework with requirements of specified product standard.
  - 2. Countertop Surface Material: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating compliance of laboratory countertop surface material with requirements specified for chemical and physical resistance.

## 1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish complete touchup kit for each type and color of casework finish provided. Include fillers, stains, finishes, and other materials necessary to perform permanent repairs to damaged laboratory casework finish.
- B. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Cabinet Mounting Clips and Related Hardware: Quantity equal to 5 percent of amount installed, but no fewer than 20 of each type.

## 1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that produces casework of types indicated for this Project that has been tested for compliance with SEFA 8 W.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Protect finished surfaces during handling and installation with protective covering of polyethylene film or other suitable material.

1.10 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install laboratory casework until building is enclosed, utility roughing-in and wet-work are complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.
- B. Established Dimensions: Where laboratory casework is indicated to fit to other construction, establish dimensions for areas where casework is to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.
- C. Locate concealed framing, blocking, and reinforcements that support casework by field measurements before enclosing them, and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
  - 1. Campbell Rhea.
  - 2. CIF Laboratory Solutions.
  - 3. Kewaunee Scientific Corporation.
- B. Source Limitations: Obtain laboratory casework from single source from single manufacturer unless otherwise indicated.
  - 1. Obtain countertops, sinks, accessories, and service fittings from casework manufacturer.
- C. Product Designations: Drawings indicate sizes and configurations of laboratory casework by referencing designated manufacturer's catalog numbers. Other manufacturers' laboratory casework of similar sizes and similar door and drawer configurations and complying with the Specifications may be considered. See Section 016000 "Product Requirements."

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design laboratory casework installation.
- B. Seismic Performance: Laboratory casework installation shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
  - 1. Design earthquake spectral response acceleration, short period (Sds) for Project is indicated on Drawings.

2. Component Importance Factor: 1.0.
3. Base Cabinet Load (Including Countertop and Load on Countertop): 320 lb/ft.
4. Wall Cabinet (Upper Cabinet) Load: 160 lb/ft.

## 2.3 CASEWORK, GENERAL

- A. Casework Product Standard: Comply with SEFA 8 W, "Laboratory Grade Wood Casework."
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

## 2.4 WOOD CASEWORK

- A. Design: Reveal overlay with square edges.
  1. Provide 1/8-inch reveals between doors and drawers that are adjacent.
- B. Wood Species: Red oak.
  1. Wood Stain Colors and Finishes: As selected by Architect from casework manufacturer's full range.
- C. Cut: Plain sliced/sawn.
- D. Veneer Matching:
  1. None required; select and arrange veneers for compatible grain and color.
- E. Grain Direction:
  1. Doors: Vertical with continuous vertical matching.
  2. Drawer Fronts: Vertical with continuous vertical matching.
  3. Face Frame Members: Lengthwise.
  4. End Panels: Vertical.
  5. Bottoms and Tops of Units: Side to side.
  6. Knee Space Panels: Vertical.
  7. Aprons: Horizontal.
- F. Exposed Materials:
  1. General: Provide materials that are selected and arranged for compatible grain and color. Do not use materials adjacent to one another that are noticeably dissimilar in color, grain, figure, or natural character markings.
  2. Plywood: Hardwood plywood, either veneer core or particleboard core with face veneer of species indicated. Grade A exposed faces, at least 1/50 inch thick, and Grade J crossbands. Provide backs of same species as faces.
  3. Solid Wood: Clear hardwood lumber of species indicated.
  4. Edgebanding: Solid wood, minimum 1/8 inch thick and of same species as face veneer.
- G. Semiexposed Materials:

1. Wood: Provide solid wood or hardwood plywood for semiexposed surfaces unless otherwise indicated.
  - a. Solid Wood: Sound hardwood lumber, selected to eliminate appearance defects, of species similar in color and grain to exposed solid wood.
  - b. Plywood: Hardwood plywood of species similar in color and grain to exposed plywood. Provide backs of same species as faces.
    - 1) Grade: B faces and Grade J crossbands.

H. Concealed Materials:

1. Solid Wood: With no defects affecting strength or utility.
2. Plywood: Hardwood plywood. Provide backs of same species as faces.
3. Particleboard.
4. MDF.
5. Hardboard.

2.5 WOOD CABINET AND TABLE MATERIALS

A. General:

1. Maximum Moisture Content for Lumber: 7 percent for hardwood and 12 percent for softwood.

B. Hardwood Plywood: HPVA HP-1, particleboard core except where veneer core is indicated.

C. MDF: Medium-density fiberboard, ANSI A208.2, Grade 130.

D. Particleboard: ANSI A208.1, Grade M-2.

E. Hardboard: ANSI A135.4, Class 1 tempered.

2.6 CABINET HARDWARE

A. General: Provide laboratory casework manufacturer's standard, commercial-quality, heavy-duty hardware complying with requirements indicated for each type.

B. Frameless Concealed Hinges (European Type): ANSI/BHMA A156.9, Type B01602, self-closing. Provide two for doors 48 inches high or less and three for doors more than 48 inches high.

1. Degrees of Opening: 135.

C. Hinged-Door and Drawer Pulls: Solid-aluminum, stainless steel, or chrome-plated-brass, back-mounted pulls. Provide two pulls for drawers more than 24 inches wide.

1. Design: Wire pulls.
2. Overall Size: 1 by 4-1/2 inches.

D. Sliding-Door Pulls: Stainless steel or chrome-plated recessed flush pulls.

- E. Steel Drawer Slides: Side mounted, epoxy-coated steel, self-closing; designed to prevent rebound when drawers are closed; complying with ANSI/BHMA A156.9, Type B05091.
  - 1. Provide Grade 1; for drawers not more than 6 inches high and 24 inches wide.
  - 2. Standard Duty (Grade 1): Full-extension type, with polymer rollers.
- F. Sliding-Door Hardware Sets: Laboratory casework manufacturer's standard, to suit type and size of sliding-door units.
- G. Adjustable Shelf Supports: ANSI/BHMA A156.9, powder-coated steel shelf rests, Type B04013.

## 2.7 COUNTERTOP AND TABLETOP MATERIALS

- A. Phenolic Composite: Solid, high-pressure decorative laminate, complying with NEMA LD 3, Grade CGS.
  - 1. Chemical Resistance: Composite countertop material has the following ratings when tested with indicated reagents according to NEMA LD 3, Test Procedure 3.4.5:
    - a. No Effect: Acetic acid (98 percent), acetone, ammonium hydroxide (28 percent), ethyl acetate, ethyl alcohol, formaldehyde (37 percent), furfural, phosphoric acid (85 percent), sulfuric acid (33 percent), toluene, benzene carbon tetrachloride dimethyl formamide hydrochloric acid (37 percent) hydrofluoric acid (48 percent) nitric acid (30 percent) sodium hydroxide (20 percent) and zinc chloride.
  - 2. Color: Black.

## 2.8 WOOD CABINET AND TABLE FABRICATION

- A. Construction: Provide wood-faced laboratory casework complying with SEFA 8 W.
  - 1. Bottoms of Base Cabinets and Tall Cabinets: 3/4-inch-thick, hardwood plywood.
  - 2. Tops and Bottoms of Wall Cabinets and Tops of Tall Cabinets: 1-inch-thick, veneer-core hardwood plywood.
  - 3. Ends of Cabinets: 3/4-inch-thick, hardwood plywood.
  - 4. Shelves: 1-inch-thick, veneer-core hardwood plywood.
  - 5. Base Cabinet Top Frames: 3/4-by-2-inch solid wood with mortise and tenon or doweled connections, glued and pinned or screwed.
  - 6. Base Cabinet Stretchers: 3/4-by-4-1/2-inch panel product strips or solid-wood boards at front and back of cabinet, glued and pinned or screwed.
  - 7. Base Cabinet Subtops: 3/4-inch-thick panel product, glued and pinned or screwed.
  - 8. Exposed Backs of Cabinets: 3/4-inch-thick, particleboard- or MDF-core hardwood plywood.
  - 9. Unexposed Backs of Cabinets: 1/4-inch-thick, hardwood plywood dadoed into sides, bottoms, and tops unless otherwise indicated.
  - 10. Drawer Fronts: 3/4-inch-thick solid hardwood.
  - 11. Drawer Sides and Backs: 1/2-inch-thick, solid hardwood or hardwood plywood, with glued dovetail or multiple-dowel joints.

12. Drawer Bottoms: 1/4-inch-thick, veneer-core hardwood plywood glued and dadoed into front, back, and sides of drawers. Use 1/2-inch-thick material for drawers more than 24 inches wide.
  13. Doors 48 Inches High or Less: 3/4 inch thick, with particleboard or MDF cores and hardwood face veneers and crossbands.
    - a. Provide solid-hardwood stiles and rails.
  14. Doors More Than 48 Inches High: 1-1/16 inches thick, with honeycomb cores, solid-hardwood stiles and rails, and hardwood face veneers and crossbands.
- B. Tables: Solid-hardwood legs, not less than 2 inches square with solid-hardwood stretchers as needed to comply with product standard. Bolt stretchers to legs and cross-stretchers, and bolt legs to table aprons. Provide leveling device at bottom of each leg.
- C. Filler and Closure Panels: Provide where indicated and as needed to close spaces between casework and walls, ceilings, and equipment. Fabricate from same material and with same finish as adjacent exposed casework surfaces unless otherwise indicated.

## 2.9 WOOD FINISH

- A. Preparation: Sand lumber and plywood before assembling. Sand edges of doors, drawer fronts, and molded shapes with profile-edge sander. Sand after assembling for uniform smoothness at least equivalent to that produced by 220-grit sanding and without machine marks, cross sanding, or other surface blemishes.
- B. Staining: Remove fibers and dust and apply stain to exposed and semiexposed surfaces as necessary to match approved Samples. Apply stain to produce a consistent appearance. Apply wash-coat sealer before applying stain to closed-grain wood species.
- C. Chemical-Resistant Finish: Apply laboratory casework manufacturer's standard two-coat, chemical-resistant, transparent finish. Sand and wipe clean between coats. Topcoat(s) may be omitted on concealed surfaces.
1. Chemical and Physical Resistance of Finish System: Finish complies with acceptance levels of cabinet surface finish tests in SEFA 8 W. Acceptance level for chemical spot test shall be no more than for Level 3 conditions.

## 2.10 COUNTERTOPS, TABLETOPS AND SINKS

- A. Countertops, General: Provide units with smooth surfaces in uniform plane, free of defects. Make exposed edges and corners straight and uniformly beveled. Provide front and end overhang of 1 inch.
- B. Sinks, General: Provide sizes indicated or laboratory casework manufacturer's closest standard size of equal or greater volume, as approved by Architect.
1. Outlets: Provide with strainers and tailpieces, NPS 1-1/2, unless otherwise indicated.
  2. Overflows: Where indicated, provide overflow of standard beehive or open-top design with separate strainer. Height 2 inches less than sink depth. Provide in same material as strainer.

C. Phenolic-Composite Countertops and Tabletops:

1. Countertop Fabrication: Fabricate with cutouts for sinks, holes for service fittings and accessories, and butt joints assembled with epoxy adhesive and concealed metal splines.
  - a. Flat Configuration: 3/4 inch thick with continuous drip groove on underside 1/2 inch from overhang edge and integral coved backsplash.
    - 1) Edges and Corners: Beveled.
2. Tabletop Fabrication:
  - a. Flat Configuration: 5/8 inch thick with continuous drip groove on underside at perimeter.
    - 1) Edges and Corners: Beveled.

D. Stainless Steel Sinks: Made from Type 304 stainless steel sheet, not less than 0.050-inch nominal thickness. Fabricate with corners rounded and coved to at least 5/8-inch radius. Slope sink bottoms to outlet. Provide continuous butt-welded joints.

1. After fabricating and welding, grind surfaces smooth and polish to produce uniform finish with no cross scratches or evidence of welds. Passivate and rinse surfaces; remove embedded foreign matter and leave surfaces clean.
2. Factory punch holes for fittings.
3. Provide with stainless steel strainers and tailpieces.
4. Provide with integral rims except where located in stainless steel countertops.
5. Apply 1/8-inch-thick coating of heat-resistant, sound-deadening mastic to undersink surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances, location of reinforcements, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF CASEWORK

- A. Comply with installation requirements in SEFA 2. Install level, plumb, and true in line; shim as required using concealed shims. Where laboratory casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical. Do not exceed the following tolerances:
  1. Variation of Tops of Base Cabinets from Level: 1/16 inch in 10 feet.
  2. Variation of Bottoms of Upper Cabinets from Level: 1/8 inch in 10 feet.
  3. Variation of Faces of Casework from a True Plane: 1/8 inch in 10 feet.
  4. Variation of Adjacent Surfaces from a True Plane (Lippage): 1/32 inch.
  5. Variation in Alignment of Adjacent Door and Drawer Edges: 1/16 inch.



- B. Base Cabinets: Fasten cabinets to utility-space framing, partition framing, wood blocking, or reinforcements in partitions, with fasteners spaced not more than 16 inches o.c. Bolt adjacent cabinets together with joints flush, tight, and uniform.
  - 1. Where base cabinets are installed away from walls, fasten to floor at toe space at not more than 24 inches o.c. and at sides of cabinets with not less than two fasteners per side.
- C. Wall Cabinets: Fasten to hanging strips, masonry, partition framing, blocking, or reinforcements in partitions. Fasten each cabinet through back, near top, at not less than 16 inches o.c.
- D. Install hardware uniformly and precisely.
- E. Adjust operating hardware so doors and drawers align and operate smoothly without warp or bind and contact points meet accurately. Lubricate operating hardware as recommended by manufacturer.

### 3.3 INSTALLATION OF COUNTERTOPS

- A. Comply with installation requirements in SEFA 2. Abut top and edge surfaces true in plane with flush hairline joints and with internal supports placed to prevent deflection. Locate joints where indicated on Shop Drawings.
- B. Field Jointing: Where possible, make in same manner as shop-made joints, using dowels, splines, fasteners, adhesives, and sealants recommended by manufacturer. Shop prepare edges for field-made joints.
- C. Fastening:
  - 1. Secure epoxy countertops to cabinets with epoxy cement, applied at each corner and along perimeter edges at not more than 48 inches o.c.
  - 2. Where necessary to penetrate countertops with fasteners, countersink heads approximately 1/8 inch and plug hole flush with material equal to countertop in chemical resistance, hardness, and appearance.
- D. Provide scribe moldings for closures at junctures of countertop, curb, and splash with walls as recommended by manufacturer for materials involved. Match materials and finish to adjacent laboratory casework. Use chemical-resistant, permanently elastic sealing compound where recommended by manufacturer.
- E. Dress joints smooth, remove surface scratches, and clean entire surface.

### 3.4 INSTALLATION OF SINKS

- A. Comply with installation requirements in SEFA 2.
- B. Underside Installation of Epoxy Sinks: Use laboratory casework manufacturer's recommended adjustable support system for table- and cabinet-type installations. Set top edge of sink unit in sink and countertop manufacturers' recommended chemical-resistant sealing compound or adhesive, and firmly secure to produce a tight and fully leakproof joint. Adjust sink and securely support to prevent movement. Remove excess sealant or adhesive while still wet and finish joint for neat appearance.

3.5 CLEANING AND PROTECTING

- A. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.
- B. Protect countertop surfaces during construction with 6-mil plastic or other suitable water-resistant covering. Tape to underside of countertop at a minimum of 48 inches o.c.

END OF SECTION 123553.19