

## SECTION 12300

### MANUFACTURED CASEWORK

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Countertops.
- B. Sinks, faucets, and plumbing accessories.

##### 1.2 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry: Framing and blocking in walls, floors and ceiling to support equipment.
- B. Section 09650 - Resilient Flooring: base for casework including floor cabinets and table legs.

##### 1.3 REFERENCES

- A. ADA (ATBCB ADAAG): Americans with Disabilities Act Accessibility Guidelines.
- B. ANSI/AIHA 9.5: American National Standard for Laboratory Ventilation.
- C. ANSI/ASHRAE 110: Method of Testing Performance of Laboratory Fume Hoods.
- D. ANSI 2358.1: Minimum Performance Requirements for Emergency Showers.
- E. ASTM A167: Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- F. ASTM A 666: Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
- G. Architectural Woodwork Institute (AWI): Quality Standards.
- H. FS W-C-596: Electrical Power Connector, Plug, Receptacle, and Cable Outlet.
- I. NEMA WD 1: General Color Requirements for Wiring Devices.
- J. NEMA WD 6: Devices-Dimensional Requirements.

- K. NEMA LD 3: High Pressure Decorative Laminates.
- L. NFPA 30: Flammable and Combustible Liquids Code.
- M. NFPA-45: Standard for Fire Protection for Laboratories Using Chemicals.
- N. OSHA 29-CFR-1910.1450: Occupational Exposure to Hazardous Chemicals in Laboratories.
- O. SEFA 1: Laboratory Fume Hoods - Recommended Practices.
- P. SEFA 7: Laboratory and Hospital Fixtures--Recommended Practices.
- Q. SEFA 8: Laboratory Furniture--Casework, Shelving and Tables--Recommended Practices.
- R. UL 498: Attachment Plugs and Receptacles.
- S. UL 1805: Laboratory Hoods and cabinets, where applicable.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Test reports certifying that the casework finish complies with SEFA-8 standards for chemical and physical resistance performance requirements.
  - 2. Performance test reports from an independent testing lab on each specified top material.
  - 3. Preparation instructions and recommendations.
  - 4. Storage and handling requirements and recommendations.
  - 5. Installation methods.
- C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
  - 1. Indicate locations of blocking and reinforcements required for installing laboratory casework.
  - 2. Indicate locations and types of service fittings, together with associated service supply connection required.
  - 3. Include details of utility spaces.
  - 4. Include indicators of exposed conduits, if required, for service fittings.
  - 5. Indicate locations of and clearances from adjacent walls, doors, windows, other building components, and other laboratory equipment.
  - 6. Include coordinated dimensions for laboratory equipment specified in other Sections.

- D. Selection Samples: For each finish product specified, one complete set of color chips representing manufacturer's full range of available colors and patterns.
  - 1. One set of samples indicating full range of finishes for countertop specified.
  - 2. One set of casework samples indicating full range of finishes for casework specified.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Not less than 5 years experience in the actual production of specified products.
- B. Installer Qualifications: Firm with 5 years experience in installation or application of systems similar in complexity to those required for this Project, plus the following.
  - 1. Authorized distributor of manufacturer.
  - 2.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until project conditions are ready for installation.

#### 1.7 PROJECT CONDITIONS

- A. For delivery and installation of laboratory casework and equipment, building conditions shall comply with AWI Standard 1700-G-3 and 1700-G-4 and be as follows:
  - 1. Flooring required to be placed under casework and equipment installed.
  - 2. Wood or metal blocking (wall grounds) installed within partitions to allow for immediate installation upon delivery.
  - 3. Heating and air conditioning systems providing consistent temperature and humidity conditions to comply with by AWI Standard 1700-G-4 and 1700-G-5.
  - 4. Relative humidity not less than 40 percent, nor more than 60 percent.
  - 5. Temperatures not less than 65 degrees F (18 degrees C) and not greater than 80 degrees F (27 degrees C) in areas of casework and equipment installation.
  - 6. Overhead mechanical, electrical and plumbing rough-in work is complete.
  - 7. Wet operations complete prior to delivery.
  - 8. Ceiling grids (with or without ceiling tiles), overhead soffits, ductwork and lighting installed.
  - 9. Painting complete.

#### 1.8 WARRANTY

- A. Casework Manufacturer Warranty: 3 years from date of delivery. Warranty is for the conditions indicated below, and when notified in writing from Owner, manufacturer shall promptly investigate and address said deficiencies.
  - 1. Defects in materials and workmanship.
  - 2. Deterioration of material and surface performance below minimum SEFA 8 standards as certified by independent third party testing laboratory.
  - 3. Within the warranty period, we shall, at our option, repair, replace, or refund the purchase price of defective casework.
  
- B. Casework manufacturer shall be notified immediately of defective products, and be given a reasonable opportunity to inspect the goods prior to return. Casework manufacturer will not assume responsibility, or compensation, for unauthorized repairs or labor. Casework manufacturer makes no other warranty, expressed or implied, to the merchantability, fitness for a particular purpose, design, sale, installation, or use, of casework; and, shall not be liable for incidental or consequential damages, losses of or expenses, resulting from the use of their products.
  - 1. The warranty with respect to products from another company sold by the casework manufacturer is limited to the warranty extended by that other company.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: CampbellRhea, or equal
  
- B. Substitutions: Selected by owner
  
- 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, similar door and drawer configurations, and complying with the Specifications, including certification to SEFA-8 standards for construction and chemical resistance, may be requested for approved substitution. Requests for substitutions will be considered in accordance with provisions of Section 01600.

### 2.2 APPLICATIONS/SCOPE

- A. Casework Group: Manufacturer shall offer an integrated product line serving the user function indicated with a coordinated design, supply and installation of casework, equipment, work surfaces, and accessories:
  - 1. General casework.
  - 2. ADA compliant.

## 2.3 CONSTRUCTION

- A. Plastic laminate on particleboard core
- B. Cabinet Surface Finish:
  - 1. Plastic laminate. Refer to Finish Schedule and drawings for plastic laminate types and locations.
- C. Drawer and Door Styles:
  - 1. Classic Drawer and Door Styling: Both door and drawer fronts are 13/16 inch (20.6 mm) thick, have a squared back edge and a 13/32 inch (10.3mm) radius to the front edges. Drawers have horizontal grain, doors have solid lumber rails and vertical grain wood veneer face and back.
- D. Door and Drawer Hardware Style:
  - 1. Drawer and door pulls:
    - a. AL-1: Extruded aluminum flattened rod in a streamline design.
  - 2. Sliding wood door pulls:
    - a. RS -1: Recessed, metal finger grip is nickel-plated pull.
  - 3. Hinges:
    - a. SS-1: Heavy-duty, institutional type, 5-knuckle hospital tipped, made from 0.083 inch (2 mm) thick stainless steel. Hinge is semi-concealed, 2 1/2 inches (64 mm) high and has off-set wings; each wing has three screw holes for the door leaf and three screw holes for the case leaf, two of which are slotted for adjustability. Hinges are attached with Euro screws.
  - 4. Latching Handle:
    - a. CP: Latching handle CP LH-1 is chrome plated, 4 1/4 inches (108 mm) long and streamline in design. Handle operates with 1/4 turn. Double door cases have latching handles on the right door and dummy handles on the left door. A three point latching system provides a positive engagement at the top and bottom of the door with tapered aluminum rods, which pull the door snug when they engage plastic strike plates. The rods are 5/16 inch (8 mm) in diameter and move in nylon guides attached to the back of the door. The middle of the door is secured by a latch plate, which engages the side of the case, or latches behind the left door on cases with double doors.
  - 5. Locking Handle:
    - a. CP: Chrome plated locking handle is a latching handle with a lock mechanism incorporated into the handle head. On double door cases, the left door has a dummy handle, and

the right door has the locking handle. Lock is laboratory grade with a 5-disc tumbler mechanism with a brushed chrome face. Tumblers and keys are brass, while the plug and cylinder is die cast zinc alloy. There are 500 key changes standard. Locks are keyed differently, master keyed and furnished with 2 keys per lock. Locks and corresponding keys are alpha-numerically coded for a quick match.

6. Locks: Removable core standards:
  - a. CP: Lock CP SL-1 is laboratory grade, cylinder cam lock, with a 5-disc tumbler mechanism with a chrome plated face. Tumblers and keys are brass, while plug and cylinder is die cast zinc alloy. A 180-degree turn of the key moves the lock cam into, or out of, a slot cut to receive it. There are 500 key changes standard. Locks are keyed differently, master keyed and furnished with 2 keys per lock. Locks and corresponding keys are alpha-numerically coded for a quick match. Lock CP SL-1 is equipped with a removable core, keying control. With the use of a control key, the key core of the lock assembly can be removed and a new key core inserted, changing the entire locking system in a matter of minutes. Key cores can be held out of the lock assembly until the project is completed, removing the security risk of lost or stolen keys during installation and construction. Casework manufacturer can provide control keys and replacement cores as required. Locks are furnished only when specified.
7. Drawer Slides:
  - a. Drawer slides DS-1: Epoxy powder coated, cold rolled steel, heavy-duty with a 100 lbs (45 kilograms) load capacity. They are equipped with heavy-duty, nylon rollers for smooth effortless operation. Slides have automatic positive stop to prevent drawer's accidental removal, but allow for quick removal without tools.
8. File Drawer Slides:
  - a. File drawer slides FD-1: Epoxy coated, cold rolled steel, heavy-duty, side mounted, and have a 125 lbs (56.25 kg) load capacity. They are equipped with heavy-duty, ball bearing nylon rollers for smooth effortless operation. Slides are full extension with a positive stop, and a trigger finger release.

## 2.4 MATERIALS

- A. Hardboard used in drawer bottoms and unexposed backs, consists of super-refined wood fibers and chips, highly compressed into a hard, dense, 1/4 inch (6 mm) thick, homogeneous sheet, faced with wood

grain pattern melamine on the exposed face. Physical properties: Average MOR is 5,000 lbs/sq inches (3.5 kgf/sq mm); density is 48 lbs/cu ft (0.6 kg/cu m); and MOE of 500,000 psi (350 kgf/sq mm).

- B. Particleboard is industrial grade, with the following physical properties: Density, 48 lb/cu. ft. (0.6 kg/cu m); minimum modulus of rupture 2,200 psi (1.5 kgf/sq mm); minimum modulus of elasticity 450,000 psi (315 kgf/sq mm).
- C. High-pressure plastic laminate, regular grade, is melamine impregnated decorative surface papers, superimposed over kraft phenolic core sheets, vertical grade, high pressure, plastic laminate has a nominal thickness of 0.030 inch (0.76 mm) complying with NEMA LD 3.
  - 1. Exposed interior and exposed exterior surfaces.

## 2.5 FABRICATION

- A. Units and configurations designated for accessibility by users shall comply with ATBCB ADAAG (ADA standards).
- B. Design, material and construction of casework, shelving and tables shall comply with SEFA 8 performance and resistance standards.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for its intended use.
- D. \*\* NOTE TO SPECIFIER \*\* Applies to all cabinet types.
- E. Cabinet construction is bored, doweled, dadoed, glued and screwed construction. Cabinets are enclosed without the use of common partitions. A full horizontal top frame with bored, doweled and glued joints, intermediate front rails and bottom rear horizontal parting rails and separators are provided as required. Separators where specified, are let into routed intermediate rails. Backs are recessed and encapsulated into dadoed end panels then screwed to the top and bottom case members. An enclosed toe space, 2 1/4 inches (57 mm) by 4 inches (102 mm) high, is provided, with the toe rail bored, doweled and glued to end panels. Shelves are supported on heavy-duty, laboratory grade, twin pin plastic shelf clips, which fit into two double rows of holes drilled 1 1/4 inches (32 mm) on centers, in the case end panels, for maximum shelf adjustability.
- F. Construction - Wall and Upper Cases: Wall and upper cases have components that are laminate on particleboard core. Adjustable shelves are 1 inch (25 mm) thick particleboard with laminate faces and appropriate edging. Backs, in cases with exposed interiors and exposed exteriors are 1/4 inch (6mm) thick hardboard with melamine

face. Backs in cases with unexposed interiors and unexposed exteriors are 1/4 inch (6 mm) hardboard with melamine face. Exterior back cross rails: 4 inches (102 mm) by 3/4 inch (19 mm) hardwood plywood.

- G. Drawer front is 13/16 inch (20.6 mm) thick. Lipped style drawer faces are integral as the faces of the drawer box and dovetailed to the box sides. Drawer box front, sides and back are 1/2 inch (12 mm), 9-ply laminated hardwood plywood. Drawer bottom is 1/4 inch (6 mm) thick hardboard with wood grained melamine face. All four corners of the drawer are dovetailed and glued. The top edges of drawer box are radiused. Drawer bottom is let in on four sides, and securely glued underneath with a continuous bead of glue around the perimeter of the drawer bottom. In cabinets 24 inches (610 mm) or less in width, drawers have one pull. In cabinets over 24 inches (610 mm) wide, drawers have two pulls.
- H. Construction - Hinged Doors:
  - 1. Hinged solid doors 48 inches (1219 mm) or less in height, 13/16 inch (20.6 mm) thick and overlap the opening on all sides. Doors have one pull. Door has two heavy duty, institutional type, and 5-knuckle hinges. Doors are secured by a friction roller catch and a metal strike plate.
- I. Construction - Sliding Doors:
  - 1. Sliding solid doors are 13/16 inch (20.6 mm) thick with squared edges; plastic laminate style sliding doors are 3/4 inch (19 mm) laminated particleboard core and operate in an overhead aluminum sliding door track assembly with adjustable nylon roller hangers. Doors are secured at the bottom of the cabinet with two plastic guides per door that operate in recessed, channels. Each door has one recessed pull with finger grip. Pull is located on out side edge of the door face. Lock is furnished when specified.

## 2.6 FINISHES

- A. Wood Cabinets: Exposed exterior and exposed interior surfaces of cabinets receive the full finishing process consisting of the specified NGR stain, baked on protective moisture resistant sealer and a topcoat of clear catalyzed chemical resistant conversion varnish. The unexposed interior surfaces of cupboards, drawers, wall cases, upper cases, and tall cases receive a baked on protective coat of moisture resistant sealer, and two applications of a topcoat of clear, catalyzed, chemical resistant conversion varnish. Other unexposed surfaces are processed through standard finishing steps, and receive a baked on protective coat of moisture resistant sealer.
  - 1. Finish shall comply with SEFA-8 resistance standard acceptable

levels for casework surfaces. An independent 3rd party testing facility's written certification must be provided to establish that final finish has no more than three, SEFA-8 "Level 3" conditions.

## 2.7 CABINET HARDWARE

- A. Provide laboratory casework manufacturer's standard finish, commercial-quality, heavy-duty hardware complying with requirements indicated for each type.
- B. Lock GL-1 is ratchet type glass door lock, with a disc tumbler mechanism and a polished nickel plate finish. The ratchet bar adjusts from 1 inch (25 mm) to 3 3/8 inches (86 mm). Two keys are provided; master keying is not available. Locks are furnished only when specified.
- C. Friction roller catch is zinc plated steel catch with a spring cushioned; polyethylene roller, and a metal strike plate. Screw mounted catches and strike plate have slotted holes for adjustability.
- D. Sliding door track assembly DT-1 has an overhead aluminum track and adjustable, nylon roller hangers. The lipped edge of the upper aluminum track prevents rollers from jumping track. Two hard plastic guides are mounted on the bottom interior of the door and operate in recessed channels.
- E. Sliding glass door track assembly GT-1 has an aluminum bottom track, and an aluminum channel mounted at the top of the cabinet. The glass rests in aluminum shoes with nylon rollers, which operate in the bottom track. The top swiped edge of the glass is fitted with plastic glide clips to assure smooth movement in the channel.
- F. Shelf clips are made from clear polycarbonate and are laboratory standard grade. Clips have double, 3/16 inch (5 mm) diameter pins and are equipped with shelf lock hold down tabs for 3/4 inch (18 mm) or 1 inch (25 mm) thick shelves.
- G. Sliding door lock, when specified, 5-disc tumbler mechanism with a dull chrome plated face. Tumblers and keys are brass, while plug and cylinder are die cast steel. Pushing in on the lock while turning the key, engages a lock bolt into the strike plate; a turn of the key, unlocks the bolt. There are 200 key changes standard. Locks are keyed differently, master keyed and furnished with 2 keys per lock. Locks and corresponding keys are alpha-numerically coded for a quick match.
- H. Leg shoes are closed-bottom style, 2 1/4 inches (57 mm) square, and molded of 1/8 inch (3 mm) black polyethylene.

## 2.8 COUNTER TOPS

- A. Chem-Surf exposed surface and edges are horizontal grade, high pressure, plastic laminate applied to particleboard core. Finished top is 1 inch (25 mm) thick, and the curb is 4 inches (102 mm) high. A phenolic backing sheet is applied to the bottom surface.

- 1. Color: As selected by Architect from manufacturer's standards.

## 2.9 ACCESSORIES:

- A. Burette Rods: 1/2 inch (12 mm) diameter, anodized aluminum, and either 18 inches (457 mm) or 24 inches (610 mm) long. Rods are furnished with a tapered aluminum adapter to fit rod socket.
- B. Clamps: 1 inch (25 mm) square aluminum stock, with two, 3/4 inch (19 mm) diameter openings, at right angles to each other, bored through sides. Openings are for upright rods and crossbars, or Greenlaw Arms. Thumb screw into each end of the clamp; tighten against the rods to hold positions.
- C. Crossbars and Greenlaw Arms: 3/4 inch (19 mm) diameter, anodized aluminum rods, with ends rounded.
- D. Rod Sockets: Mushroom type, machined from a solid aluminum rod. Sockets are held in place by a heavy aluminum lock nut and washer.
- E. Upright Rods: 3/4 inch (19 mm) diameter, anodized aluminum, 36 inches long with a rounded top and a tapered bottom to fit rod sockets.
- F. Reagent Shelves: Provide as indicated, fabricated from same material as adjacent countertop, unless otherwise indicated.
- G. Adjustable Wall Shelf Supports: Standard is anodized chrome standard and shelf brackets. Epoxy powder coating is an option and must be specified.
- H. Metal Key Cabinets.
- I. Plastic Tote Tray.
- J. Pegboards: Clear acrylic, epoxy, or phenolic-composite pegboards with removable polypropylene pegs and stainless-steel drip troughs with drain outlet.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.

1. Walls and openings are plumb, straight and square.
  2. Concrete floors level within 1/8 inch (3 mm) level per 10 foot (3000 mm) run, non-accumulative, when tested with a straight edge in any one direction.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 COORDINATION

- A. Laboratory equipment contractor shall furnish equipment to the building, setting in place, leveling and scribing to walls and floors. Furnish plumbing and electrical fixtures, including nipples and lock nuts needed to secure each fixture to the equipment.
- B. Coordination with mechanical contractor who shall furnish, install and connect drain lines, service piping, vents, re-vents, in-line vacuum breakers, special plumbing fixtures, traps and tailpieces. Work to be completed through, under or along backs of working surfaces as required and complete final connection of services. Assemble, install and make final connections of service fixtures furnished by casework contractor, including service fixtures in fume hoods. Furnish, install and connect fume hood blowers, motors and all related ductwork. Furnish, install and connect service piping within fume hoods, including final connection.
- C. Coordination with electrical contractor who shall furnish, install and connect electrical service lines, wire and conduit within the equipment, including reagent racks and fume hoods. Work to be completed through, under or along backs of working surfaces as required and complete final connection of services. Install and make final connections of electrical fixtures provided by casework installer, including electrical fixtures in fume hoods.

### 3.3 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### 3.4 INSTALLATION

- A. Install casework in accordance with manufacturer's instructions.
1. Installation of casework shall be plumb, level, true and straight, with no distortions.
  2. Use concealed shims as required.
  3. Where laboratory casework or equipment butts against other

4. finished work, scribe and cut for an accurate fit.
  4. Lubricate operating hardware as recommended by the manufacturer.
- B. Install countertop and edge surfaces in one plane with flush hairline seams. Locate seams where shown on Shop Drawings.
1. Provide required holes and cutouts for service fittings as shown on Shop Drawings.
  2. Seal unfinished edges and cutouts in plastic-laminate countertops.
  3. 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.
  4. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- C. Coordination with Mechanical, Plumbing and Electrical Contractors: Coordinate work of this Section with work of other Sections including but not limited to:
1. Water and laboratory gas service fittings, piping, electrical devices, and wiring.
  2. Installation of fittings according to Shop Drawings and manufacturer's written instructions.
  3. Setting bases and flanges of sink and countertop-mounted fittings in sealant recommended by manufacturer of sink or countertop material.
  4. Anchorage of fittings, piping, and conduit to laboratory casework, unless otherwise indicated.

### 3.5 PROTECTION

- A. Cover installed casework and equipment with 4-mil polyethylene.
- B. Protect installed products until completion of project.
- C. Touch-up, repair or replace damaged products before Substantial Completion.
- D. A qualified manufacturer representative shall demonstrate operation and maintenance procedures of the installed casework and equipment to the Owners personnel.

END OF SECTION