

# **SECTION 12 35 53**

(FORMERLY 12345)

## **LAMINATE LABORATORY CASEWORK**

### **PART 1: GENERAL**

#### **1.1 SECTION INCLUDES**

- A.** Modular Wood Casework
- B.** Mobile Modular Wood Casework
- C.** Wood Shelving
- D.** Wood Tables
- E.** Hardware

#### **1.2 RELATED SECTIONS**

- A.** Division 06 Section 10 00, "Rough Carpentry and Wall Blocking"
- B.** Division 09 Section 65 13, "Resilient Base and Accessories"
- C.** Division 11 Section 53 00, "Laboratory Equipment"
- D.** Division 12 Section 31 00, "Manufactured Metal Casework"
- E.** Division 12 Section 36 00, "Countertops"
- F.** Division 22 Section 40 00, "Plumbing Fixtures"
- G.** Related Work To Be Performed By Others:
  - 1. Final installation of all plumbing, service and electrical fixtures attached to casework or countertop (excluding piping and wiring within fume hoods).
  - 2. Final connection to service lines of all plumbing, service and electrical fixtures attached to laboratory casework or furniture.

#### **1.3 REFERENCES**

- A.** AWI: Quality Standards, Eighth Edition
- B.** SEFA 8: Laboratory Furniture – Casework, Shelving and Tables Guidelines

- C. HPVA: Hardwood Plywood Veneer Association
- D. ISO 9001:2008 – Quality Management  
International Standards Organization (ISO)
- E. Forest Stewardship Council
- F. ADA (ATBCB ADAAG) Americans with Disabilities Act Accessibility Guidelines  
Americans with Disabilities Act (ADA)

## 1.4 SYSTEM DESCRIPTION

### A. Cabinet and Casework Area Design:

1. Full flush overlay door and drawer faces with 1/8" reveal vertically and horizontally between door and/or drawer faces. 1/16" between door and/or drawer faces and the end panel of a cabinet. Mortise hinges into door if required to meet this specification.
2. High Pressure Laminate (HPL) exterior/exposed surfaces
3. Material for cabinet interior, cabinet bottoms, horizontal rails and shelves is to be thermally fused melamine on a M3 grade particleboard core.
4. All edge banded surfaces to be 3mm PVC edge banding. 1mm edge banding is not acceptable.

## 1.5 SUBMITTALS

*Refer to Section 01 33 00, "Submittal Procedures," for requirements, procedures, etc.*

### A. Product Data:

1. Drawings shall include data and details for construction of the laboratory casework as well as information regarding the name, quantity, type and construction of materials (such as hardware, etc), that will be used to complete the project.

### B. Shop Drawings:

1. The laboratory casework manufacturer shall furnish shop drawings illustrating the layout and placement of all laboratory casework and fume hoods as well as any products included in this section.
2. Indicate the type and location of all service fittings and associated supply connections.
3. Preparation instructions and recommendations.
4. Storage and handling requirements and recommendations.

5. Installation methods.

### **C. Selection Samples:**

Submit the following:

1. Samples for Selection: Manufacturer's standard sample collection.
2. Selection of manufacturer's standard range of thermally fused melamine. Provide a minimum of three wood grains and five solid colors.
4. Countertop sample: 6" x 6".
5. One unit of each type of exposed hardware.

### **D. Quality Assurance/Control**

1. Design Data/Test Reports: Manufacturer shall submit test data and design criteria which are in compliance with the project specifications.
2. Certificates: All certifications required in the specifications shall be submitted with the original submittal package under separate cover. Certificates must be provided with the signature of a qualified individual of the supplier.
3. Manufacturers' Instructions: Provide manufacturer's instructions for installation and maintenance of all products provided and installed within this section.

## **1.6 QUALITY ASSURANCE**

### **A. Manufacturer Qualifications:**

The following list of information will be provide to the Architect at least ten (10) days prior to the bid opening:

1. List of manufacturing facilities;
2. A list of ten (10) installations of comparable stature completed by their workforce within the past 5 years;
3. Construction details depicting the materials, sizes and methods of construction;
4. Independent laboratory test reports that include information on cabinet, fume hood and table top finish and performance that have been conducted within the last two years.

## **1.7 DELIVERY, STORAGE AND HANDLING**

### **A. Packaging, Shipping, Handling and Unloading**

1. Packaging: Products shall have packaging adequate enough to protect finished surfaces from soiling or damage during shipping, delivery and installation.
2. Delivery: Casework delivery shall only take place after painting, utility rough-ins and related activities are completed that could otherwise damage, soil or deteriorate casework in installation areas.

3. Handling: Care, such as the use of proper moving equipment, experienced movers, etc., shall be used at all times to avoid damaging the casework. Until installation takes place, any wrapping, insulation or other method of protection applied to products from the factory will be left in place to avoid accidental damage.

**B. Acceptance at Site:**

1. Casework will not be delivered or installed until the conditions specified under Part 3, Installation section of this document have been met. Products delivered to sites that are not enclosed and/or improperly conditioned will not be warranted against warping or damage due to unsatisfactory conditions.

**C. Storage:**

1. Casework shall be stored in the area of installation. If, prior to installation, it is necessary for casework to be temporarily stored in an area other than the installation area, the environmental conditions shall meet the environmental requirements specified under the Project Site Conditions article of this section.

**D. Waste Management and Disposal:**

1. The supplier of the laboratory casework is responsible for removing any waste or refuse resulting from the installation of, or work pertaining to laboratory casework; thereby leaving the project site clean and free of debris. Trash container(s) to be provided by others.

## **1.8 WARRANTY**

- A.** Furnish a written warranty that Work performed under this Section shall remain free from defects as to materials and workmanship for a period of one (1) year from date of shipment. Defects in materials and workmanship that may develop within this time are to be replaced without cost or expense to the Owner.

Defects include, but are not limited to:

1. Ruptured, cracked, or stained coating
2. Discoloration or lack of finish integrity
3. Cracking or peeling of finish
4. Slippage, shift, or failure of attachment to wall, floor, or ceiling
5. Structural failure
6. Warping or unloaded deflection of components
7. Failure of hardware

## PART 2 – PRODUCTS

### 2.1 MANUFACTURER

#### A. Acceptable Manufacturer:

1. Mott Manufacturing Ltd.as distributed by **New England Lab®** (NEL).
  - i. Boston Corporate Offices - 1 Arrow Drive Woburn, MA 01801
    1. (888) 635-2080
  - ii. Baltimore Office - 2707 N. Rolling Road Suite 110 Baltimore, MD 21244
    1. (410) 944-7060
  - iii. North Carolina Office - 2175 Presidential Drive Suite 130 Durham, NC 27703
    1. (919) 469-8054
  - iv. For pricing - [info@newenglandlab.com](mailto:info@newenglandlab.com)
  - v. For product questions – Rand Weyler - [rand@newenglandlab.com](mailto:rand@newenglandlab.com)
2. New England Caseworks
  - i. 460 Wildwood Ave Woburn, MA 01801
    1. (781) 932-4180
  - ii. For pricing – [info@newenglandcaseworks.com](mailto:info@newenglandcaseworks.com)

#### B. Substitutions:

Must meet all specification requirements and have prior approval.

#### C. Requests for substitutions:

All requests will be considered in accordance with provisions of Section 01 60 00.

### 2.2 MANUFACTURER

#### A. Cabinet Surfaces:

1. All semi- exposed and non-exposed surfaces shall be thermally fused melamine (TFM) unless balanced construction is required.
2. All exposed surfaces shall be 1/32" thick phenolic resin laminate (High Pressure Laminate - HPL) constructed with balanced construction. (Same material physical characteristics on both sides of panel. Color or finish may vary)

#### B. Hardware and Trim:

1. Door and Drawer Pulls: Shall be 4" rounded wire pull with brushed stainless steel finish, offer a comfortable hand-grip and be securely fastened to doors and drawers with screws. Two pulls shall be required on all drawers over 24 inches wide. Use of a design not compatible for usage by handicapped will not be acceptable. Pulls shall be mounted horizontally on drawers and vertically on doors.
2. Hinges: Shall be five (5) knuckle 2 3/4" grade 1 type 304 stainless steel for all hinged doors. Two hinges for doors less than 4 ft. in height and three hinges on doors over 4 ft. in height.

#### C. Locks:

1. Casework drawers and hinged doors: Shall be provided when indicated by the specified product number, shown on the drawings, or called for in the casework schedule. Exposed surface of locks shall be dull chrome. All locks, for the purpose of coordinating keying systems, shall be National five (5) tumbler.
  - a. Furnished with master keys.

OR

**b. [Provide Grandmaster Keying]**

**D. Door Catches:**

1. Roller Catches: Shall be used on all hinged doors (European concealed hinge and low profile three knuckle hinges excluded). Catches shall have a spring-loaded dual polyethylene roller and are provided with a steel strike plate. Double doors without locks shall have a catch on each door. Tall cases shall have latching devices located on upper and lower part of each door. On cabinets equipped with locks, the left-hand door shall have a positive catch and the right hand door shall have roller type catch.
2. Elbow Catches: Catches and strike plates shall be used on left hand doors of double door cases where locks are used, and shall be steel, cadmium plated.

**E. Drawer Slides:**

1. Drawer slides for standard drawers shall be 100 lbs ball bearing full extension type
  - a. Standard Slide: Fuller 100 lbs Rated – Full Extension Type with Soft/Self-Close Feature – Zinc Plated
  - b. Heavy Duty Slide for file drawers or when indicated on drawings or casework schedule: Fuller 200 lbs Rated – Full Extension Type with Soft/Self-Close Feature – Zinc Plated
  - c. Mobile Cabinets when more than one drawer is required: Fuller 100 lbs Rated – Interlocking Full Extension Type with Soft/Self-Close Feature – Zinc Plated

**F. Shelf Support Clips:**

1. Shall be single steel pin, or plastic twin pin seismic type, for mounting on interior of cabinets. Clips shall be corrosion resistant and shall retain shelves from accidental removal. Shelves are adjustable on 32 mm centers.
  - a. Provide plastic seismic support
  - b. **[Provide steel pin support]**

OR

**G. Melamine Backs:**

1. Thermally fused melamine on 1/4" wood-fiber and resin substrate.

## **2.3 CABINET CONSTRUCTION**

- A. Face Style:** Full flush overlay door and drawer faces with 1/8" reveal vertically and horizontally between door and/or drawer faces. 1/16" between door and/or drawer faces and the end panel of a cabinet. Mortise hinges into door if required to meet this specification.
- A. Cabinet Ends:** 3/4" High Pressure Laminate with 3mm PVC edge band. Color selected from manufacturer's standard range of colors, not less than a choice of six colors / patterns.
- B. Support Rails:** Top rails (front & rear), and back rails (top & bottom), and intermediate rails between drawers shall be thermally fused melamine 3/4" x 3-3/4" doweled into cabinet side panels. Front rail shall be edge banded with 3mm PVC edge band.
- C. Security Panels:** Shall be between all locking doors or drawers when locks are specified and noted as "keyed differently".

- D. **Toe Space Rail:**  $\frac{3}{4}$ " thermally fused melamine fastened to the cabinet with dowels
- E. **Cabinet Bottoms:**  $\frac{3}{4}$ " thermally fused melamine with a 3mm PVC edge band set flush and attached to cabinet ends with dowels.
- F. **Cabinet Backs:** Fully removable  $\frac{1}{4}$ " melamine on medium density fiberboard.
  - 1. Provide on all cabinets with doors
  - 2. Sink cabinets with have a partial back to allow for plumbing, etc.
- G. **Vertical Dividers:** Full height dividers and half height dividers shall be 1-1/2" thermally fused melamine, secured to bottom of cabinet and top rails, glued and fastened. Exposed edges shall be edge banded to match casework
- H. **Shelves:**  $\frac{3}{4}$ " thermally fused melamine on cabinets  $\leq 36$ " and 1" on cabinets  $> 36$ " at 32mm spacing to be set on specified shelf support hardware. Provide  $\frac{3}{4}$  depth shelves in standard cupboards and full depth shelves in open units.
- I. **Drawer Body:** Cabinet sides to be constructed from  $\frac{1}{2}$ " thick 9-ply Baltic Birch. Cabinet sides shall extend to  $\frac{1}{2}$ " below the above intermediate rail (or equivalent distance if no intermediate rail is used) and shall be attached via dovetail joints at all four corners. Bottom shall be  $\frac{1}{4}$ " tempered hardboard and shall be trapped into the sides of the cabinet and hot glued completely around the bottom.
- J. **Door and Drawer Fronts:**  $\frac{3}{4}$ " high pressure laminate, edge banded all sides with 3mm PVC edge banding. Use balanced construction to prevent warpage.

## 2.4 WALL AND FLOOR CASES

- A. **Case Ends:**  $\frac{3}{4}$ " high pressure laminate with 3mm PVC edge banding on all front edges. Use balanced construction to prevent warpage.
- B. **Tops and Bottoms of Floor Cases:** 1" thick thermally fused melamine with 3mm PVC edge banding on all front edges. Fasten to end panels with dowel pin joinery
- C. **Tops and Bottoms of Wall Cases:** 1" thick thermally fused melamine with 3mm PVC edge banding on all front edges. Use of  $\frac{3}{4}$ " thick material for this component is not acceptable. Fasten to end panels with dowel pin joinery
- D. **Backs:**  $\frac{1}{4}$ " melamine on medium density fiberboard.
- E. **Fixed Center Shelf on Floor Cases:**  $\frac{3}{4}$ " thermally fused melamine with 3mm PVC edge banding on all cabinets  $\leq 36$ ". 1" thermally fused melamine with 3mm PVC edge banding on cabinets  $> 36$ " with 3mm PVC edge banding on exposed edges on all open, hinged, and sliding door cabinets. Fasten fixed center shelves to ends with dowel pin construction
- F. **Adjustable Shelves:**  $\frac{3}{4}$ " thermally fused melamine with 3mm PVC edge banding on cabinets  $\leq 36$ " and 1" on cabinets  $> 36$ " 32mm spacing to be set on specified shelf supports.
- G. **Tall Case Doors:** Solid panel doors shall be  $\frac{3}{4}$ " high pressure laminate with 3mm PVC edge banding and balanced construction.

## 2.5 SPECIAL UNITS:

### A. Acid Storage Base Cabinet:

1. Cabinet exterior is fabricated of high pressure laminate to match to color and finish of adjacent cabinetry but is to be lined with a removable polyethylene one piece tub. Tub shall have molded in adjustable shelf supports and be provided with a 1" thick black phenolic shelf. Door shall be constructed with balanced construction and lined with a polypropylene sheet. All screws shall be capped.
2. Acid cabinets occurring under fume hoods, when shown on drawings, shall be provided with two exhaust ducts. The upper duct shall extend up through the top material into the hood side wall and terminate with entry into the hood chamber at a point above the upper angled baffle. Ducting material shall be 2" diameter O.D. flexible medium-weight blue PVC wall hose construction reinforced with a spring steel wire helix meeting UL 94V-0 (Flame retardant) and supplied separately for installation on-site by the installer. Connections to the hood interior and cabinet interior shall be with 2" CPVC threaded elbow fittings and flange nuts. Zip-tie or clamp hose to barb hose ends on CPVC fittings.

## PART 3 – EXECUTION

### 3.1 INSTALLERS

#### A. Installer Qualifications:

1. Installer shall have a minimum of 5 years continued experience in installation or application of systems similar to those required for this project.
2. Installer shall be authorized by either the distributor or manufacturer. Warranty will be void if unauthorized installer executes the installation.

### 3.2 EXAMINATION

#### A. Site Verification of Conditions:

1. Casework will not be delivered or installed until the following conditions have been met:
  - a) Building must be enclosed (windows and doors sealed and weather-tight);
  - b) An operational HVAC system that maintains temperature and humidity at occupancy levels must be in place;
  - c) Ceiling, overhead ductwork and lighting must be installed;
  - d) Site must be free of further construction such as "wet work."
  - e) Required backing and reinforcements must be installed accurately and the project must be ready for casework installation.

#### B. NOTE:

In the event that any of the specified requirements for installation are not present at the time of requested delivery, the general contractor or owner must provide the casework manufacturer with a letter of deviation that releases the manufacturer from any responsibility or liability from an damage to the products resulting from the unfavorable building conditions.



### 3.3 INSTALLATION

#### A. Casework Installation:

1. Casework shall be set with components plumb, straight and square, securely anchored to building structure with no distortion. Concealed shims shall be used as required.
2. Cabinets in continuous runs shall be fastened together with joints flush, uniform and tight with misalignment of adjacent units not to exceed 1/16 of an inch.
3. Wall casework shall be secured to solid material, not lath, plastic or gypsum board.
4. Top edge surfaces shall be abutted in one true plane. Joints are to be flush and gap shall not exceed 1/8 of an inch between tops units.
5. Casework and hardware shall be adjusted and aligned to allow for accurate connection of contact points and efficient operation of doors and drawers without any warping or binding.

#### B. Countertop Installation:

1. Countertops are to have been fabricated in lengths according to drawings, with ends abutting tightly and sealed with corrosion resistant sealant.
2. Tops will be anchored to base casework in a single true plane with ends abutting at hairline joints with no raised edges at joints.
3. Joints shall be factory prepared having no need for in-field processing of top and edge surfaces.
4. Joints shall be dressed smoothly, surface scratches removed and entire surface cleaned thoroughly.

### 3.4 CLEANING

- A. Ensure all products are unsoiled and match factory finish. Remove or repair damaged or defective units.
- B. Clean all finished surfaces, including drawers and cabinet shelves, and touch up as necessary.
- C. Countertops shall be cleaned and free of grease or streaks.

### 3.5 PROTECTION

- A. Counter tops and ledges shall be protected with 1/4 inch ribbed cardboard for the remainder of the construction process.
- B. Examine casework for damaged or soiled areas; replace, repair, and touch-up as required.
- C. Touch-up, repair or replace damaged products before Substantial Completion.

**END OF SECTION**