	Title: YALE OFFICE OF FACILITIES PROCEDURE MANUAL Chapter: 01 - Yale Design Standard Division: 12 00 00 Furnishings	Section: <b>12 24 50</b> Requirements for Laboratory Casework
		Date: December 2023
		Author: Office of Facilities

## **PART 1 - INTRODUCTION**

### **1.1 PURPOSE**

This section contains general design criteria for laboratory casework, countertops, sinks and service fixtures.

## **PART 2 - GENERAL DESIGN REQUIREMENTS**

### **2.1 SYSTEM DESIGN AND PERFORMANCE REQUIREMENTS**

- A. Casework must be manufactured, delivered, and installed under the direct supervision of a single manufacturer to ensure a single source of responsibility.
- B. Depending on lab use, select lab casework material on a case-by-case basis.

### **2.2 SUBMITTALS**

Contractors must submit the following design and construction documents to Yale University.

#### **A. Product Data**

Provide product data for appliances and equipment, cabinet hardware, sinks, and tailpieces.

#### **B. Shop Drawings**

Indicate component dimensions, configurations, elevations, construction details, joint details, and attachments.


#### **C. Samples**

1. Submit samples of casework finish designating the finish and color.
2. Submit samples of counter top materials.

#### **D. Test Reports Submit product test data.**

The following product performance tests must be performed and certified by an independent testing agency.

1. Base cabinet construction—racking test
2. Wall cabinet construction—racking test
3. Wall cabinet construction—static load test
4. Drawer corner or joinery strength test
5. Drawer construction—static load test

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6. Cabinet adjustable shelf and support devices—static load test
7. Cabinet interior, exterior, and edging materials—acid resistance tests

E. Warranty

Provide a five-year manufacturer’s warranty covering all casework furnished.

2.3 PRODUCT STANDARDS

All casework must conform to Scientific Equipment and Furniture Association publication SEFA 8-1998: Performance and Recommended Practices.

2.4 MANUFACTURERS

Subject to compliance with the design requirements, provide products by Fisher Hamilton or Kewaunee.

2.5 MATERIALS

Use the following laboratory casework materials.

A. Steel

1. ASTM A366, mild steel, cold-rolled, pickled, double annealed patent leveled
2. Free from rust, scales, scratches, buckles and other defects
3. Steel sheets must be metallic furniture stock
4. Electro-statically applied urethane powder coat finish

B. Stainless Steel


1. ASTM A240, Type 304 stainless steel for tops, sinks, shelves, and casework
2. #4 satin finish

C. Epoxy Resin Bench Tops

1. Molded, modified epoxy resin sheets
2. Uniform mixture throughout
3. Not depending on a surface coating that can be readily removed by chemical abuse

D. Glass

1/4" thick clear, laminated, safety glass for framed and unframed cabinet doors

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E. Solid Surface Countertops

1/4" thick clear, laminated, safety glass for framed and unframed cabinet doors

F. Plastic Laminate and Chemically-Resistant Plastic Laminate

Nevamar, Formica, or an approved equivalent

2.6 SPECIALIZED CASEWORK

A. The top, bottom, sides and doors of flammable liquid storage cabinets must be not less than 18-gauge, double-walled steel construction, with 1-1/2" between the walls. Cabinet doors must be equipped with a three-point latch system. Provide a liquid tight pan that can hold 2" of liquid. Cabinets must be ventilated, with flame arrestors provided on all vents. Cabinet fronts must be clearly labeled "FLAMMABLE– KEEP FIRE AWAY" with 1" highlights.


B. Corrosive chemical storage cabinets must be constructed from a complete corrosion-resistant liner. Cabinets must be ventilated. Provide a liquid-tight pan that can hold 2" of liquid. Cabinet fronts must be clearly labeled "ACID STORAGE" with 1" high letters.

2.7 COUNTERTOPS

Table 1 is a guide for selecting laboratory countertop materials. Select countertop materials based on the use of the laboratories and an evaluation of the chemicals.

**Table 1. Laboratory Countertop Materials**

Countertop Material	Life Expectancy	Type of Use
Plastic laminate	20	Offices, electronics lab, dry activities
Chemical-resistant plastic laminate	20	Clinical labs
Solid surfacing (Corian), Group C Sink bowl	50	Clinical labs, some chemical labs
Phenolic resin composite	50	Chemical labs
Epoxy resin – black, 1" thick Sink bowl	50	Chemical labs
Epoxy resin – gray, 1" thick	50	Chemical labs
Epoxy resin – white, 1" thick, factory quote only	50	Chemical labs
Stainless steel, type 302/304 Sink bowl	Life	Wet Labs with frequent cleaning and high durability

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2.8 YALE SCHOOL OF MEDICINE

- A. Countertops: (Color: Grey)
  - 1. Epoxy, or when authorized, acid resistant plastic laminate. (plastic laminate is only authorized in limited applications where there is little moisture and no caustic reagents)
  - 2. Epoxy reagent shelving at peninsulas.
- B. Acid resistant plastic laminate wall shelving on plywood. When acid resistant plastic laminate is authorized for counter tops, epoxy counter tops shall be used at sink cutouts and 2'-0" +/- on either side.
- C. Handicap adaptability of all lab bench to 30" height is required. All bench top joints to be silicone sealed to facilitate removal. (See General Design Guidelines for further information on adaptable laboratories)
- D. Laminate panel box chases are to enclose all piping from ceiling to bench top.
- E. Epoxy reagent shelving to be supported on 1 ½" X 11 ½" stock frames.
- F. In laboratories, when casework abuts existing radiator, drawer base and support panel at carrels are to be removable for access to adjacent radiator. This requires that drawer units and panels next to the radiator NOT be part of the support structure for the carrel.
- G. Provide locks at all carrel drawers, including drawers in adjacent lab bench if assigned to carrel. One key is to be used for all locks at a given carrel. NOT a different key per drawer.

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