

SECTION 12321

MANUFACTURED WOOD CASEWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes wood laboratory casework, countertops, fixtures and accessories.
- B. Related Sections include the following:
 - 1. Division 11 Section "Laboratory Fume Hoods" for manufactured laboratory fume hoods.
 - 2. Division 12 Section "Manufactured Table Systems" for manufactured steel tables.
 - 3. Division 12 Section "Painted Steel Laboratory Casework" for manufactured laboratory casework and countertops.
 - 4. Division 12 Section "Stainless Steel Laboratory Casework" for manufactured laboratory casework and countertops.
 - 5. Division 12 Section "Manufactured Plastic Laminate Casework" for manufactured plastic laminate casework and countertops.
 - 6. Division 15 Section "Plumbing Fixtures" for sink units mounted in countertops.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For cabinets and countertops. Include plans, elevations, details, and attachments to other work. Show materials, finishes, filler panels, hardware, edge and backsplash profiles, cutouts for plumbing fixtures, and methods of joining countertops.
- C. Samples for Selection: Manufacturer's color charts showing the full range of colors, textures, and patterns available for each type of material indicated.
 - 1. Wood-veneered panels with transparent finish, 8 by 10 inches (200 by 250 mm), for each species.
 - 2. Solid wood with transparent finish, 50 sq. in. (300 sq. cm), for each species.
 - 3. Plastic laminate for countertops, 8 by 10 inches (200 by 250 mm).
 - 4. Solid phenolic material for countertops, 6 inches (150 mm) square.
 - 5. Epoxy resin material for countertops, 6 inches (150 mm) square.
 - 6. One unit of each type of exposed hardware.
- D. Maintenance Data: For countertops and finishes to include in maintenance manuals specified in Division 1.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing wood cabinets similar to those indicated for this Project and with a record of successful in-service performance.

- B. Source Limitations for Cabinets: Obtain laboratory casework, including tops and accessories, through one source from a single manufacturer.

1.4 COORDINATION

- A. Coordinate layout and installation of blocking and reinforcement in partitions for support of laboratory casework.
- B. Obtain templates for sink cutouts with plumbing contractor.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver laboratory casework until painting, utility roughing-in, and similar operations that could damage, soil, or deteriorate casework have been completed in installation areas.
- B. Protect finished surfaces from soiling and damage during handling and installation. Keep covered with polyethylene film or other protective covering.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install laboratory casework until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Established Dimensions: Where laboratory casework is indicated to fit to other construction, establish dimensions for areas where casework is to fit. Coordinate construction to ensure that actual dimensions correspond to established dimensions. Provide fillers and scribes to allow for trimming and fitting.
- C. Field Measurements: Where laboratory casework is indicated to fit to existing construction, verify dimensions of existing construction by field measurements before fabrication and indicate measurements on Shop Drawings. Provide fillers and scribes if necessary.
- D. Field Measurements for Countertops: Verify dimensions of countertops by field measurements after base cabinets are installed but before countertop fabrication is complete. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.7 WARRANTY

- A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of table systems that fail in materials or workmanship within specified warranty period.
 - 1. One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS AND PRODUCTS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. New England Laboratory Casework Co., Inc. 3 Arrow Drive Woburn, MA 01801 (888) 635-2080. www.newenglandlab.com email info@newenglandlab.com
- B. Products: Subject to compliance with requirements, provide the following products:
 - 1. Lexington Series.

2.2 CABINET MATERIALS

- A. Exposed Wood Species: As follows. Do not use two adjacent exposed faces that are noticeably dissimilar in color, grain, figure, or natural character markings.
 - 1. [Maple plain sliced veneer.] [Red oak plain sliced veneer.] [Red oak rift cut veneer.] [specify other here.]
- B. Veneer Plywood: Hardwood plywood complying with HPVA HP-1 with face veneer of species indicated, selected for compatible color and grain with Grade A faces and Grade 1 backs of same species as faces.
 - 1. Edge band exposed edges with minimum 1/8 inch thick, laminated wood edging of same species as face veneer.
- C. Veneer Particleboard: Hardwood plywood complying with HPVA HP-1 with face veneer of species indicated, selected for compatible color and grain with Grade A faces and Grade 1 backs of same species as faces.
 - 1. Edge band exposed edges with minimum 1/8 inch thick, laminated wood edging of same species as face veneer.
- D. Thermoset Decorative Panels: Medium-density particleboard complying with ANSI A208.1, Grade M-2; with surface of thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

2.3 CABINET CONSTRUCTION

- A. Face Style: Flush overlay; door and drawer faces cover cabinet body members or face frames with only enough space between faces for operating clearance.
- B. Face Frames: Frameless.
- C. Base Units
 - 1. Cabinet Ends: 3/4" [veneer plywood] [veneer particleboard] with 1/8" laminated wood edge on all exposed surfaces.
 - 2. Front Top Rail: 3/4" x 4" [veneer plywood] [veneer particleboard] with 1/8" laminated wood edge and fastened to cabinet ends with minimum six dowels.
 - 3. Rear Top Support Rails: 3/4" x 9" [veneer plywood] [veneer particleboard] fastened to cabinet with minimum six dowels.
 - 4. Bottom Support Rails: 3/4" x 4" [veneer plywood] [veneer particleboard] fastened to cabinet with minimum six dowels.

5. Toe Space Rail: 3/4" x 4" [veneer plywood] [veneer particleboard] fastened to cabinet ends with pocket screws to form a 4" high x 3" deep toe space.
6. Cabinet Bottoms: 3/4" [veneer plywood] [veneer particleboard] with 1/8" laminated edge, set flush and fastened to cabinet ends with dowels at 64mm max spacing.
7. Cabinet Backs on Closed Cabinets: Removable one-piece 1/4" thermally fused melamine. Cabinet backs on open cabinets will match the species and grade of the cabinet body and will be 1/2".
8. Vertical Dividers: Full height dividers and half height dividers shall be 1-1/2" material of matching species and grade as cabinet body, secured to bottom, front top rail and rear top rail with staples and screws. Exposed edges to be veneered to match casework.
9. [Shelves: 3/4" veneer plywood set on steel pin type shelf supports at 32mm spacing. Cabinets at 36" wide or wider, shelves shall be 1" thick. Provide full depth shelves in standard cabinets and in open units.]
10. [Shelves: 3/4" veneer particleboard set on steel pin type shelf supports at 32mm spacing. Cabinets at 32" wide or wider, shelves shall be 1" thick. Provide full depth shelves in standard cabinets and in open units.]
11. [Drawer construction: Drawer bodies shall be Blum Metabox system with 1/2" melamine bottom and back. Exposed top edge of back to be edged with .018" thick PVC.]
12. [Drawer Construction: Fabricate drawer box back, front and sides of 1/2" 9 ply hardwood plywood and finish with the same laboratory grade finish as the cabinet. Use dovetail joinery on all four joints. Provide 1/4" birch plywood drawer bottom and groove into all four sides of the drawer box and glued into position. Fix drawer body to drawer front with screws.]
13. Door and Drawer Fronts: 3/4" veneer particleboard banded on all sides with 1/8" edgeband to match cabinet face veneer.

D. Wall and floor cases

1. Case Ends: 3/4" [veneer plywood] [veneer particleboard] with 1/8" laminated wood edges on exposed edges.
2. Tops of Wall and Floor Cases: 3/4" [veneer plywood] [veneer particleboard] with 1/8" laminated wood edges on exposed edges, fastened to ends with dowels at 64mm maximum spacing.
3. [Bottoms of Wall Cases: 3/4" thick veneer plywood with 1/8" laminated wood edges on exposed edges, with edging on exposed edge, set flush and fastened to cabinet ends with dowels at 64mm maximum spacing. Cabinets at 36" wide or wider, bottoms shall be 1" thick.]
4. [Bottoms of Wall Cases: 3/4" thick veneer particleboard with 1/8" laminated wood edges on exposed edges, with edging on exposed edge, set flush and fastened to cabinet ends with dowels at 64mm maximum spacing. Cabinets at 32" wide or wider, shelves shall be 1" thick.]
- 5.
6. [Bottoms of Floor Cases: 3/4" veneer plywood with 1/8" laminated wood edges on exposed edges, fastened to cabinet with dowels at 64mm maximum spacing. Cabinets at 36" wide or wider, bottoms shall be 1" thick.]
7. [Bottoms of Floor Cases: 3/4" veneer particleboard with 1/8" laminated wood edges on exposed edges, fastened to cabinet with dowels at 64mm maximum spacing. Cabinets at 32" wide or wider, bottoms shall be 1" thick.]
8. Backs: 1/2" [veneer plywood] [veneer particleboard] recessed and glued into rebates on all four sides.
9. [Fixed Center Shelf on Floor Cases: 3/4" veneer plywood with matching veneer edges on exposed edges, on all open, hinged and sliding door cabinets. Fasten fixed center shelves

- to ends with dowels at 64mm maximum spacing. Cabinets at 36" wide or wider, center shelf shall be 1" thick.]
10. [Fixed Center Shelf on Floor Cases: 3/4" veneer particleboard with matching veneer edges on exposed edges, on all open, hinged and sliding door cabinets. Fasten fixed center shelves to ends with dowels at 64mm maximum spacing. Cabinets at 32" wide or wider, center shelf shall be 1" thick.]
 11. Adjustable Shelves: 3/4" [veneer plywood] [veneer particleboard] with matching veneer edges on front edges. Set on metal shelf pins at 32 mm spacing.

E. Doors:

1. Solid Doors:
 - a. 3/4" veneer particleboard banded on all sides with 1/8" edgeband to match cabinet face veneer.
 - b. Provide two hinges on all doors up to 36" in height and a minimum of three hinges on any doors exceeding this height.
2. Framed Glazed Doors
 - a. Hinged Doors: 3/4" solid hardwood shaped to accept 5mm thick tempered glass on wall and floor cases.
 - b. Provide two hinges on all doors up to 36" in height and a minimum of three hinges on any doors exceeding this height.
 - c. Sliding Doors: Provide doors that slide in top channels with a nylon wheel operating on an inset plastic track.
 - d. Hold glass in place with a removable clear rubber panel retainer to facilitate change of damaged glass.
3. Unframed Sliding Glass Doors:
 - a. 6 mm tempered glass with all edges ground, set in extruded aluminum shoe with nylon wheel assemblies and top and bottom extruded aluminum track.
 - b. Provide silencer guides fitting on top of glass panel for smooth and noiseless operation.
 - c. Use adhesive backed pulls.

2.4 TABLES

- A. Provide standard height table aprons of not less than 3/4" x 3-3/4" solid hardwood, machined to receive corner blocks and bolted to 2" x 2" solid hardwood legs. Drawers shall be constructed and finished as cabinet drawers. For low height table, aprons shall be 2" high.
- B. Provide tables with leveling devices and black PVC shoes.

2.5 HARDWARE

- A. Recessed metal pulls, model Hafele #151.00.311. Finish to be matte black. Mount pulls horizontally for both hinged doors and sliding doors and drawers. Mount pulls in framed sliding doors vertically.
- B. Wire Pulls: Provide brushed chrome steel 4" wire pulls. Mount drawer pulls horizontally and door pulls vertically.
- C. Hinges:
 1. Full overlay, 120° opening, concealed type, incorporating a self-closing feature. Mounting plate to provide three-way adjustment in door alignment.

2. [Institutional type 2-1/2", 5-knuckle powder coated steel hinge wrap around design.
 - a. Provide [black] [brushed chrome] [stainless steel] finish.
3. Provide two hinges on doors up to 36" in height, three hinges on doors over 36" in height.

D. Drawer Slides:

1. [Provide self closing drawer slides that are integral to the epoxy coated metal drawer side and operate on a nylon roller with ball-bearing wheel. Provide a mechanism for horizontal and vertical adjustment of drawer faces. Provide a double stop to prevent accidental removal when drawer is fully extended. Provide Blum Metabox.]
2. [75 lb dynamic rated, epoxy coated, self closing slides, No. 230M Series by Blum.]
3. [Provide full extension drawer slides with telescopic movement on ball bearings. Provide finger release disconnect for easy removal. Provide slide with a dynamic load rating of 100 lbs in anachrome finish.]
4. For file drawers, provide full extension drawer slides with telescopic movement on ball bearings. Provide finger release disconnect for easy removal. Provide slide with a dynamic load rating of 200 lbs in anachrome finish.

E. Elbow catches: Spring type with strike, where locks occur in hinged double door units.

F. [Door catches: adjustable type, spring activated nylon roller catches. Note: cannot be used with Blum self-closing hinges.]

G. Locks: 5 pin (disc) tumbler cam locks with offset cam. Exposed face chrome plated.

1. Keying: [Keyed alike.] [Keyed in groups per room with master key.]

H. Sliding Door Tracks: Provide K&V #1093AL for upper track and #165 lower track and Rollit #159 glide.

I. Steel Shelf Pins: Provide Hafele 282.04.711

J. Track for Sliding Glass Doors (unframed): Provide K&V assembly #1092.

K. Levelers: Provide [Outwater plastic #LL-158-3.]

2.6 FINISHES

- A. Provide a laboratory grade, chemically resistant, non-flame spreading, acid curing catalytic lacquer finish.
- B. Apply sealer to all exposed and semi-exposed surfaces.
- C. Sand all finished surfaces with a fine sandpaper between each application of sealer and finishing lacquer.

2.7 WORK SURFACES

- A. Plastic Laminate Work Surface: 1 inch thick medium density particleboard core with .050 inch thick high-pressure laminate on top surface, phenolic backer sheet, and [self edge] [3 mm PVC] [90 degree bullnose] [180 degree bullnose] edge treatment. Laminate color as selected by the Architect from manufacturer's standard options.

- B. Epoxy Resin Work Surface: 1 inch thick, [black,] [grey,] [white,] [green,] [light blue,] [graphite,] [tan,] factory molded of DURCON modified epoxy-resin formulation, uniform mixture throughout full thickness with smooth, non-glare finish. Finish edges with a [1/8 inch bevel] [3/16 inch radius] and drip groove.
 - 1. Provide 4" high by 1" thick applied backsplash at walls and when abutting fume hoods.
- C. Phenolic Work Surface: [3/4 inch] [1 inch] thick solid phenolic resin sheet. Color as selected by Architect from manufacturer's standard options.
- D. Stainless Steel Work Surface: Type 304 stainless steel tops and working surfaces with #4 finish, unless otherwise specified. Provide 16 gauge stainless steel on all exposed surfaces, reinforced on the underside by 16 gauge galvanized steel channels, so spaced as to prevent twisting, oil-canning or buckling. Form exposed edges of tops into a 1 1/4" thick channel shape. Form splash rails and curbs from the same sheet as the top or so welded thereto that they form integral parts thereof. Form top edges of curbs and splash-backs into a channel shape. Where stainless steel sinks are supplied, weld the sink bowl to the top so as to form an integral part thereof. Grind all welds smooth and polish to a uniform satin finish over the entire exposed top and sink assembly. Do not solder sinks, curbs or splash rails to the top. Mechanical joints or field joints, where made necessary by size, shall be a tight butt joint of the top surfaces, reinforced and held in alignment with steel reinforcements. After fabrication and polishing, give the surfaces of the tops a strippable protective coating to protect the tops during shipment and installation. Coat the underside of tops and sinks with a sound deadener.
- E. Butcher Block Work Surface: Rock-hard, edge grained laminated maple, electronically bonded together utilizing controlled pressure and resin adhesives.
 - 1. Thickness: [1-3/4 inch.] [2-1-4 inch.] [3 inch.]
 - 2. Edge Style: [Straight.] [Radius edge.] [Bullnose edge.]
 - 3. Finish: Dura Kryl 102, acrylic wear-resistant wood finish.

2.8 FIXTURES

- A. Stainless steel sinks: Fabricated from Type 304 stainless steel, except where Type 316 stainless steel shall be used. Provide No. 4 finish for exposed surfaces. Provide 16 gage metal thickness for sink surfaces (sides & bottoms), unless heavier gauges are specified. Deep drawn sinks are not acceptable. Continuously weld sink joints by heliarc welding process. Provide 1 inch inside radii. Pitch bottoms to the drain indent. Weld sink bowl to the top as to form an integral part thereof where sinks are built into stainless steel tops or working surfaces. Form top edges of free standing sinks into a channel formation with all joints welded and ground smooth and polished. Soldering will not be permitted in connection with sink construction. Furnish stainless steel sinks with crumb cup strainers unless otherwise specified.

2.9 MECHANICAL SERVICE FIXTURES

- A. Service Fixtures. Provide fixtures complete with washers, locknuts, unions, nipples and other accessories for positive mounting to supporting laboratory units. Include wall and deck turrets and flanges, escutcheons, and similar items required. Provide turrets and flanges with non-removable pins or screws to prevent turning the fixture on the deck or wall. Factory assemble all fixtures (including the assembly of valves and shanks to turrets, flanges and other mounting accessories) and individually factory test each fixture in the manner set forth below. Secure threaded connections with setscrews or cement. Provide service fixtures (including valves and fittings used in fume hoods) and safety equipment by one service fitting manufacturer.

- B. Material and Finish. Fabricate service fixtures from cast brass containing a minimum of 85% copper or forged brass containing a minimum of 60% copper.
1. Finish service fixtures and safety equipment as follows:
 - a. [Exposed Surfaces: Polished chrome plated.]
 - b. [Exposed Surfaces: Epoxy powder coated in (white) (gray) (tan) or other color acceptable to architect.]
 2. Exposed Surface of Fittings Inside Fume Hoods: Epoxy powder coated in color to match the fixture service index color (or other color acceptable to architect).
- C. Handles. Except as otherwise noted, provide forged brass four-arm style handles on all fixtures. Provide handles with a screw-on index disc that is color-coded to match the fixture service index color.
1. Where wrist blade handles for water fixtures are desired, designate by the suffix "BH".
 2. Provide laboratory ball valves and ground key cock valves with a forged brass lever-type handle which visually indicates the position of the valve.
 3. Provide combination cold water/gas fixtures with a molded nylon hooded style handle.
- D. Service Outlet Identification. Provide a colored plastic index disc with embossed identification letters at each service fixture handle. Secure index discs with cement so as to be tamperproof. Color code index discs as follows:

<u>Service</u>	<u>Index Color</u>	<u>Letter Color</u>	<u>Symbol</u>
Cold Water	Green	White	CW
Hot Water	Red	White	HW
Gas	Blue	White	GAS
Air	Orange	White	AIR
Vacuum	Yellow	Black	VAC
Nitrogen	Brown	White	NIT
Steam	Black	White	STM
De-ionized Water	White	Black	DI
Other Services	On Application		

- E. Water Faucets and Valves. Provide units with a renewable unit containing all working components subject to wear. Unit shall have serrations for position locking in valve body and shall have a thermoplastic valve disc, molded TFE stem packing and replaceable stainless steel seat. Retain the unit by a packing nut which is secured with a setscrew. Provide faucet bodies with two non-removable pins inserted into the bottom of the body to prevent turning the fixture on the countertop. Provide water faucets and valves meeting the requirements of ANSI/ASME A1 12.18.1 M.1 989 and be certified by the Canadian Standards Association (CSA) under standard CAN/CSA B.1 25.M89. Fully assemble and individually factory test water faucets and valves at 80 PSI water pressure.
- F. Laboratory Ball Valves. Provide units with a forged brass body with non-removable serrated hose end, integral check valve and oversize lever-type handle. Provide valves with a chrome-plated ball with integral stem and molded TFE seals. Individually factory test ball valves at 125 PSI air pressure and provide rating of 75 PSI air working pressure. Where used for natural gas service, ball valves shall be certified by the American Gas Association (AGA) and the Canadian Gas Association (CGA) to 1/2 PSI working pressure.

- G. Combination Cold Water/Gas Fixtures: Provide combination cold water/gas fixtures with a forged brass base, 1/21, IPS Schedule 80 brass riser and a forged brass water valve body mounted at the top of the riser. Construct the water valve as described in paragraph E above. Construct laboratory ball valves or ground key cock valves for gas service as described in paragraphs F and G. above. Secure threaded connections with cement.
- H. Remote Control Valves. Provide straight or angle pattern valves, as required. Provide valves with a forged brass valve body and needle- or compression-type internal construction, as required. Provide complete with guide plate, rod and handle with non-removable color-coded index disc. Provide guide plate with vandal-resistant one-way screws. Test valves at pressures indicated above for particular valve service.
- I. Goosenecks.
 - 1. Cupsinks and Lab Sinks: Rigid gooseneck fabricated of 1/21, IPS Schedule 80 brass pipe and with 1/21, IPS male inlet thread for connection to faucet body so as to be absolutely rigid.
 - 2. Provide a 3/8" IPS female outlet thread for attachment of anti-splash outlet fittings, serrated tips, aspirators (filter pumps), etc.
- J. Serrated Hose Ends. Provide serrated tip fittings with a 3/8" IPS thread with the hose end being tapered and provide not less than ten serrations. Provide 1/8 inch diameter orifice in serrated tip, except where otherwise specified. Provide serrated tip of round design and cement in place to be non-removable.
- K. Vacuum Breakers. Where indicated by model number, provide ASSE-certified vacuum breakers on water fixtures. Provide vacuum breakers with an ultra-light float cup, silicone vent disc and replaceable seat. Provide the vacuum breaker bonnet with self-locking threads and vandal-resistant cover screws.
- L. Safety Equipment. Provide emergency eye, eye/face wash and drench hose units with spray-type outlet heads to deliver a soft, wide, high volume spray of water. Provide outlet heads with a forged brass body, an internal self-regulating flow control, a reticulated polyurethane filter, a threaded spray cover and a float-off dust cover. Locate wearing components inside spray head for ease of service. Provide spray head with a threaded collar and setscrew to secure all components in place. Provide emergency eye wash and shower equipment with third-party certification to comply with ANSI Z358.1-1990.
- M. Service Fixture Schedule. Provide fixtures and safety equipment manufactured by WaterSaver Faucet Co. Provide the following fixture types:
 - 1. [Insert schedule of required fixtures]

2.10 ELECTRICAL SERVICE FIXTURES

- A. Service Fixtures. Provide units complete with metal housing or box; necessary receptacles, terminals, switches, pilot lights, device plates; and fittings required for mounting on casework. Electric pedestal boxes shall be listed by Underwriters Laboratories (UL) under Standard UL514A. Receptacles shall be UL labeled and commercial or specification grade.
 - 1. Service fixtures are indicated by symbols, with design type of each fixture indicated by letter and numbers.
- B. Pedestal Type Fixtures. Cast aluminum box complete with cover plate(s) and receptacles) or other devices as indicated. Fabricate units with sloped single face or double face, as indicated,

and conceal mounting holes in base for attaching to casework. Provide holes tapped for conduits and grounding screws. Boxes shall have a non-removable pin inserted into the base to prevent turning the fixture on the countertop.

- C. Line Type Fixtures. Cast aluminum box with threaded holes for mounting on rigid steel conduit, complete with cover plate(s) and receptacle(s) or other devices as indicated.
- D. Recessed Type Fixtures. Galvanized steel outlet box (size as required) complete with cover plate(s) and receptacle(s) or other devices as indicated.
- E. Cover Plates. Provide stainless steel Type 302 cover plates with formed and beveled edges for outlets and devices. Cover plates for receptacles or other devices on emergency circuits shall be finished red and engraved with the word "Emergency" in black filled letters. Provide one-way vandal-resistant screws for cover plates and receptacles.
- F. Cover Plate Identification.
 - 1. [Insert appropriate requirements]
- G. Finishes for Service Fixture Components. Finish exposed surfaces of pedestal and line type fixtures and face plates as follows:
 - 1. [Wrinkle black epoxy powder coated finish. Provide faceplates with satin (brushed) finish stainless steel.
 - 2. [Satin (brushed) aluminum finish. Provide faceplates with satin finish stainless steel.
 - 3. [Polished (bright) aluminum finish. Provide faceplates with polished finish stainless steel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances, location of reinforcement, and other conditions affecting performance of wood laboratory casework installation.
 - 1. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install plumb, level, and true; shim as required, using concealed shims. Where laboratory casework abuts other finished work, apply filler panels for accurate fit, with fasteners concealed where practical.
- B. Base Cabinets: Set cabinets straight, plumb, and level. Adjust subtops within 1/16 inch (1.5 mm) of a single plane. Fasten cabinets to utility-space framing, partition framing, wood blocking, or reinforcements in partitions with fasteners spaced 24 inches (600 mm) o.c. Bolt adjacent cabinets together with joints flush, tight, and uniform. Align similar adjoining doors and drawers to a tolerance of 1/16 inch (1.5 mm).
 - 1. Where base cabinets are not installed adjacent to walls, fasten to floor at toe space with fasteners spaced 24 inches (600 mm) o.c. Secure sides of cabinets to floor, where they do not adjoin other cabinets, with not less than 2 fasteners.

- C. Wall Cabinets: Hang cabinets straight, plumb, and level. Adjust fronts and bottoms within 1/16 inch (1.5 mm) of a single plane. Fasten to hanging strips, masonry, partition framing, blocking, or reinforcements in partitions. Fasten each cabinet through back, near top, at not less than 24 inches (600 mm) o.c. Align similar adjoining doors to a tolerance of 1/16 inch (1.5 mm).
- D. Install hardware uniformly and precisely. Set hinges snug and flat in mortises, unless otherwise indicated. Adjust and align hardware so moving parts operate freely and contact points meet accurately. Allow for final adjustment after installation.
- E. Adjust casework and hardware so doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.

3.3 INSTALLATION OF TOPS

- A. Field Jointing: Where possible, make in the same manner as shop jointing using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project site processing of top and edge surfaces is not required. Locate field joints where shown on approved Shop Drawings.
- B. Secure epoxy tops to cabinets with epoxy cement, applied at each corner and along perimeter edges of not more than 48 inches (1200 mm) o.c.
- C. Abut top and edge surfaces in one true plane, with internal supports placed to prevent deflection. Provide flush hairline joints in tops using clamping devices.
 - 1. Where necessary to penetrate tops with fasteners, countersink heads approximately 1/8 inch (3 mm) and plug hole flush with material equal to top in chemical resistance, hardness, and appearance.
- D. Provide required holes and cutouts for plumbing and electrical fixtures.
- E. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
- F. Provide scribe moldings for closures at junctures of top, curb, and splash, with walls as recommended by manufacturer for materials involved. Match materials and finish to adjacent casework. Use chemical-resistant, permanently elastic sealing compound where recommended by manufacturer.

3.4 ADJUSTING AND CLEANING

- A. Adjust casework and hardware so doors and drawers are centered in openings and operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.
- B. Clean casework on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.
- C. Protection: Provide 6-mil (0.15-mm) plastic or other suitable water-resistant covering over countertop surfaces. Tape to underside of countertop at minimum of 48 inches (1200 mm) o.c.

END OF SECTION 12321