PART 1 - GENERAL

1.1 SUMMARY:

A. Section Includes:

1. Laboratory tops, sinks, and accessories.

B. Related Sections:

1. Sections 06400 and 12304 - Non-chemical resistant plastic laminate tops.
2. Section 12304 - Plastic Laminate Faced Casework.
3. Section 12345 - Metal Laboratory Casework.
4. Section 12346 - Wood Laboratory Casework.
5. Section 12349 - Laboratory Service Fixtures.

1.2 SUBMITTALS:

A. Product Data:

1. Submit manufacturer's data and installation instructions for each type of top, sink and accessory.
   a. Include independent laboratory certification that material complies with specified chemical and physical resistance requirements.

B. Shop Drawings:

1. Submit shop drawings for tops, sink and accessories, coordinated with requirements for laboratory casework. Coordinate shop drawings with other work involved.

1.3 QUALITY ASSURANCE:

A. Provide laboratory tops, sinks, and accessories (for integration with laboratory casework and fume hoods, as required) furnished by the same supplier as for casework for single responsibility.

B. Chemical and Physical Resistance:

THIS PROVISION SHALL BE AT THE OPTION OF THE DESIGNER AND UNIVERSITY.
1. Provide an independent testing laboratory report certifying that the finish of laboratory tops, sinks, and accessories are capable of withstanding the specified chemical and physical resistance requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Provide tops, sinks and accessories produced by one of the following or approved equal:

2. Hamilton Manufacturing Co.
3. Campbell Rhea
4. Durcon Co. (epoxy resin only)
5. Epoxyn Products (epoxy resin only)
7. Just Industries (stainless steel only)
8. Hanson Lab Furniture

2.2 MATERIALS:

A. General:

1. Tops, Box Curbs, Splash Rim: Provide smooth, clean, exposed tops and edges, in uniform plane free of defects. Make exposed edges and corners uniformly rounded.

2. Top Sizes: Furnish tops in maximum practicable lengths, as follows, or longer if available.

   a. Laminated plastic: 8 ft.
   b. Stainless steel: 10 ft.
   c. Epoxy resin: 6 ft.

3. Top Thickness: Maintain 1.25" thickness with tolerance not exceeding \( \pm 1/32" \). Provide front and end overhang of 1" over base cabinets, formed with continuous drip groove on under surface 0.5" from edge.

   a. Epoxy resin and plastic laminate tops may be 1" thick in lieu of 1.25".

4. Tops: Provide a minimum 3/8” raised edge around cup sink cut outs, i.e., provide a 3/8” lip above work surface.

2.3 CAST EPOXY RESIN:

B. Physical Properties: Flexural strength: 4000 psi; compressive strength: 14,000 psi; hardness, Rockwell M: 197; water absorption in 24 hours: 0.05%; heat distortion point: 400° F.; highly resistant to thermal shock.

C. Chemical Resistance: Spot test of following reagents in laboratory concentrations indicated, by weight, in contact with finished top for 24 hours, effect as indicated below:

<table>
<thead>
<tr>
<th>REAGENT</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochloric Acid 37%</td>
<td>Excellent</td>
</tr>
<tr>
<td>Sulfuric Acid 33%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Sulfuric Acid 77%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Sulfuric Acid 96%</td>
<td>Failure</td>
</tr>
<tr>
<td>Formic Acid 90%</td>
<td>Excellent</td>
</tr>
<tr>
<td>Nitric Acid 20%</td>
<td>Excellent</td>
</tr>
<tr>
<td>Nitric Acid 30%</td>
<td>Excellent</td>
</tr>
<tr>
<td>Nitric Acid 70%</td>
<td>Good</td>
</tr>
<tr>
<td>Hydrofluoric Acid 48%</td>
<td>Fair</td>
</tr>
<tr>
<td>Phosphoric Acid 85%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Chromic Acid 60%</td>
<td>Failure</td>
</tr>
<tr>
<td>Acetic Acid 98%</td>
<td>Excellent</td>
</tr>
<tr>
<td>&amp; 8 Equal Parts</td>
<td>Excellent</td>
</tr>
<tr>
<td>Ammonium Hydroxide 10%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Sodium Hydroxide 10%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Sodium Hydroxide 20%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Sodium Hydroxide 40%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Sodium Hydroxide Flake 100%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Sodium Sulphide 100%</td>
<td>Excellent</td>
</tr>
<tr>
<td>Zinc Chloride 100%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Tincture of Iodine 100%</td>
<td>Excellent</td>
</tr>
<tr>
<td>Silver Nitrate 100%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Methyl Alcohol 100%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Ethyl Alcohol 100%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Butyl Alcohol 100%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Benzene 100%</td>
<td>Excellent</td>
</tr>
<tr>
<td>Xylene 100%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Toluene 100%</td>
<td>Excellent</td>
</tr>
<tr>
<td>Gasoline 100%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Dichlor Acetic Acid 100%</td>
<td>Good</td>
</tr>
<tr>
<td>DiMethyl Formamide 100%</td>
<td>Excellent</td>
</tr>
<tr>
<td>Ethyl Acetate 100%</td>
<td>No Effect</td>
</tr>
<tr>
<td>Amyl Acetate 100%</td>
<td>Excellent</td>
</tr>
</tbody>
</table>
35. Acetone 100% Excellent
36. Chloroform 100% Excellent
37. Carbon Tetrachloride 100% No Effect
38. Phenol 100% Excellent
39. Cresol 100% Excellent
40. Formaldehyde 100% No Effect
41. Trichloroethylene 100% Excellent
42. Ethyl Ether 100% Excellent
43. Furfural 100% Good
44. Methylene Chloride 100% Excellent
45. Mono Chlor Benzene 100% Good
46. Dioxane 100% Excellent
47. Methyl Ethyl Ketone 100% Excellent
48. Acid Dichromate 100% Fair
49. Hydrogen Peroxide 100% No Effect
50. Naphthalene 100% Excellent

D. Workmanship: Surfaces must be very smooth, with factory cut-outs for sinks and drip grooves. Plain butt type joints assembled with epoxy adhesive and prefitted, concealed metal spline. Provide raised marine edge around the entire perimeter of tops and counters containing sinks. Provide 4" integral backsplash with intersection coved.

2.4 PLASTIC LAMINATE:

A. Provide 0.051" thick plastic laminate sheet, Formica 840, lab grade, Wilson Art "Chem-Surf" or Pioneer Plastics "Chem-Guard H48" complying with NEMA LD-3.

B. Provide 3 mm hot melt applied PVC to exposed edges of tops and splashes to match color of top. Provide self-edging with same plastic laminate used for tops at all other openings.

C. Top and back 4" splash one piece with intersection not coved.

2.5 STAINLESS STEEL:

A. 14-gage stainless steel sheet, AISI Type 302/304 with No. 4 satin finish.

B. Weld all shop joints, grind smooth and polish to become practically invisible.

C. Provide hair-line butt jointed field joint mechanically bolted through continuous channels welded to underside at edges. Keep field jointing to a minimum.

CHEMICAL RESISTANT PLASTIC LAMINATE TOPS ARE GENERALLY BLACK TO DISTINGUISH FROM NON-CHEMICAL-RESISTANT TOPS.
D. Apply steel reinforcing channels to the underside of top where necessary to insure rigidity without deflection.

E. Extend top down to provide a 1.25" thickness and 0.5" return flange under frame. Sound-deaden entire under-surface with heavy build mastic coating.

F. Form with integral coved backsplash.

G. Provide a raised marine edge around the entire perimeter of tops and counters containing sinks. Pitch top surface two-ways to bowl to provide adequate drainage without channeling or grooving.

1. Where stainless steel sinks occur in stainless steel tops, factory assemble sinks and tops into one integral unit with all welds ground and polished.

INCLUDE COMPLETE LIST OF ALL ACCESSORIES REQUIRED (GREENLAW ARM ASSEMBLIES, ETC.) WITH ALL OPTIONS CLEARLY CALLED OUT.

PART 3 - EXECUTION

3.0 EXAMINATION:

A. Verify rough-ins for mechanical and electrical services for types, sizes, adequacy and locations.

1.2 INSTALLATION:

A. Field Jointing:

1. Where practicable, make in same manner as factory jointing using dowels, splines, adhesives, and fasteners recommended by manufacturer. Locate field joints as shown on accepted shop drawings, factory prepared so that there is no job site processing of top and edge surfaces.

B. Fastenings:

1. Plastic Laminate and Stainless Steel: Use concealed clamping devices for field joints in countertops located within 6" of front, at back edges and at intervals not exceeding 24". Tighten in accordance with manufacturer's instructions to exert a constant, heavy clamping pressure at joints. Secure tops to cabinets with "Z"-type fasteners or equivalent, using 2 or more fasteners at each front, end, and back.

2. Epoxy Resin: Secure to cabinets with epoxy cement applied at each corner and along with perimeter edges at not more than 48" o.c.
END OF SECTION 12348