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**ABET LAMINATI Spec Note: This master specification is written to include SPEC NOTES noted as “ABET LAMINATI Spec Note” in order to assist designers in their decision-making process. SPEC NOTES precede the text to which they apply. This section should serve as a guideline only and should be edited by a knowledgeable person to meet the requirements of each specific Project.**

**Text indicated in bold and by square brackets is optional. Make appropriate decisions and delete the optional text as well as the brackets in the final copy of the specification. Delete or hide the SPEC NOTES in the final version of the document.**

**This specification section is written to follow the recommendations of the Construction Specifications Institute/Construction Specifications Canada (CSI/CSC) such as MasterFormat™, SectionFormat™, and PageFormat™. It is also written with metric and imperial units of measurement.**

**ABET LAMINATI manufactures and sells solid phenolic laboratory countertops materials. ABET LAMINATI does not practice architecture or engineering. Therefore, the design responsibility remains with the architect, engineer, or consultant. We hope the information given here will be of some assistance. It is based upon data considered to be true and accurate and is offered solely for the user’s consideration, investigation and verification. Nothing contained herein is representative of a warranty or guarantee for which ABET LAMINATI can be held legally responsible. ABET LAMINATI does not assume any responsibility for any misinterpretation or assumptions the reader may formulate.**

## **PART 1 - GENERAL**

### **1.1 SUMMARY**

- A. Section Includes: Provide labor, materials, products, equipment and services to complete the solid phenolic laboratory countertops work specified herein. This includes, but is not necessarily limited, to:
1. Chemical-resistant solid phenolic countertops for laboratory applications.

2. Auxiliary materials required for a complete installation.
- B. Related Requirements: Specifications throughout all Divisions of the Project shall be read as a whole, and may be directly applicable to this Section.

**ABET LAMINATI Spec Note: The following list of sections is provided as a sample only. Edit to meet the requirements of the project.**

1. Related requirements provided below are for convenience purposes only.
  - a. Section 06 10 00, Rough Carpentry: for wood blocking used for anchorage of laboratory countertops.
  - b. Section 07 92 00, Joint Sealants: for provision of joint sealants.
  - c. Section 09 21 16, Gypsum Board Assemblies: for reinforcements in steel framed partitions required for attachment of laboratory casework.
  - d. Section 12 35 53, Laboratory Casework: for base cabinets and other laboratory casework.

## 1.2 REFERENCES

- A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.
- B. All reference amendments adopted prior to the Bid Closing date of this Project shall be applicable to this Project.
- C. All materials, installation and workmanship shall comply with all applicable requirements and standards.

**ABET LAMINATI Spec Note: Edit the following paragraphs to fit this project's requirements. Once edits are complete, delete any standards that are not mentioned in this Section.**

- D. British European Standards:
  1. BS EN 438-4: 2016: High-pressure decorative laminates (HPL). Sheets based on thermosetting resins (usually called laminates).
- E. International Organization for Standardization:
  1. ISO 178:2019: Plastics — Determination of flexural properties.
  2. ISO 9001:2015, Quality management systems.
  3. ISO 14001:2015, Environmental management systems.
  4. ISO 14025:2006, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.
- F. Canada Green Building Council (CaGBC):
  1. LEED Canada-Building Version 4.0, LEED (Leadership in Energy and Environmental Design): LEED BD+C: Core and Shell Development.

- G. Scientific Equipment & Furniture Association:
  - 1. SEFA 2-2010: Scientific Equipment and Furniture Association, Recommended Practices for Installations.
  - 2. SEFA 3-2010: Scientific Equipment and Furniture Association, Recommended Practices for Laboratory Grade Casework.
  - 3. SEFA 8 PH-1999: Scientific Equipment and Furniture Association, Recommended Practices for Laboratory Grade Casework.
  
- H. California Department of Public Health (CDPH):
  - 1. CDPH Standard Method v1.2–2017: Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers Version 1.2.

### 1.3 ADMINISTRATIVE REQUIREMENTS

**ABET LAMINATI Spec Note: Retain the paragraph below if the work of this Section is sufficiently extensive or complex to warrant a meeting prior to the installation of the countertops. Review the information below and update as necessary to incorporate particular requirements about the meeting.**

- A. Preinstallation Meeting: Conduct conference at Project site.
  - 1. Review and finalize construction schedule, as well as establish staffing, material, equipment, and facilities requirements to proceed with work of this Section and avoid delays.
  - 2. Review procedures necessary for solid phenolic laboratory countertops installation, including manufacturer's written instructions.
  - 3. Confirm requirements for temporary protection of solid phenolic laboratory countertops assemblies during and after installation.
  - 4. Review and establish procedures for repairing countertops that have been damaged during or after installation.
  - 5. Maintain records of proceedings, including remedial measures and action items. Provide copy of meeting records to each participant.
  
- B. Coordination: Prior to installing solid phenolic laboratory countertops, verify sizes and locations of framing, furring, blocking, and other reinforcements to ensure countertops can be erected as indicated on reviewed Shop Drawings.
  - 1. Coordinate installation of solid phenolic laboratory countertops with installation of related laboratory equipment.

### 1.4 ACTION SUBMITTALS

**ABET LAMINATI Spec Note: Edit text in square brackets to reflect the specifics of the project.**

- A. Make Submittals in accordance with provisions indicated in **[Section 01 33 00, Submittal Procedures.]**
- B. Product Data: Submit product literature and data sheets for solid phenolic laboratory countertops indicating product features, performance criteria, physical dimensions, finishes and limitations.
- C. Sustainable Design Submittals:
  - 1. Building Product Disclosure and Optimization: To promote the use of environmentally and health-conscious construction materials, manufacturer must provide publicly available information as follows:

**ABET LAMINATI Spec Note: Retain text in square brackets below if the project is pursuing LEED V4 credits related to building product disclosure and optimization.**

- a. Environmental Product Declarations (EPD): Submit Product-specific Type III EPD conforming to ISO 14025 **[or other approved environmental product declaration framework recognized by CaGBC.]**
- b. Health Product Declarations (HPDs): Submit documentation demonstrating chemical inventory of materials to at least 0.1% (1000ppm) and conforming to: Health Product Declaration Open Standard v2.2 **[or other approved material ingredient framework recognized by CaGBC.]**

**ABET LAMINATI Spec Note: For projects desiring to use wood from sustainably harvested sources, Abet Laminati can offer FSC certified wood. Review the requirements of the project and edit the paragraph below accordingly. Delete the paragraph below if the project does not plan to use FSC certified wood.**

- 2. **[Sourcing of Raw Materials: Submit Forest Stewardship Council (FSC) chain-of-custody certifications demonstrating that products are manufactured from certified wood sources that comply with forest certification standards.]**

**ABET LAMINATI Spec Note: Solid phenolic laboratory countertops systems specified in this Section are manufactured with no-added formaldehyde (NAF) or ultra-low emitting formaldehyde (ULEF) as a standard. These characteristics contribute to the human health and sustainability criteria of various green building rating systems, such as LEED.**

- 3. Low-Emitting Materials:
  - a. Submit certifications indicating compliance with general emissions evaluation per CDPH Standard Method v1.2 as specified in this Section.
  - b. Submit composite wood evaluation and certifications for no-added formaldehyde (NAF) or ultra-low emitting formaldehyde (ULEF) composite-wood products per California Air Resources Board (CARB) composite wood products Airborne Toxic Control Measure (ATCM)
- D. Shop Drawings: Show the following:
  - 1. Submit plans, elevations, and sections indicating types, sizes, support framing details and required cutouts in countertops.
  - 2. Show attachments to adjoining elements including necessary blocking, bracing required for complete installation.
  - 3. Check actual measurements/openings by field measurements before fabrication; indicate documented measurements on Shop drawings.

4. Include coordinated dimensions for laboratory equipment specified in other Sections.
- E. Samples:
1. Submit samples minimum 305 mm (12 inches) by 305 mm (12 inches) for each exposed finish required and edge treatment. Include fasteners, closures, and other solid phenolic laboratory countertop accessories.

### **1.5 INFORMATIONAL SUBMITTALS**

- A. Sample Warranties: Submit sample warranties for extended warranties indicated in this Section for Consultant's review.
- B. Test and Evaluation Reports: Submit copies of test and evaluation reports prepared by independent testing agencies acceptable to authorities having jurisdiction attesting to the conformity of solid phenolic laboratory countertops with the following:
1. Fire performance requirements stipulated in this Section.
  2. Chemical and physical resistance requirements stipulated in this Section.
- C. Certificates:
1. Submit proof of manufacturer's ISO 9001 registration and compliance.
  2. Submit proof of manufacturer's ISO 14001 registration and compliance.

### **1.6 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: Submit solid phenolic laboratory countertops maintenance data for inclusion in building's operation and maintenance manuals.

### **1.7 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Provide Products from a manufacturer with minimum 20 years of experience and capable of providing solid phenolic laboratory countertops systems that meet or exceed performance requirements indicated in this Section.
1. Manufacturer must be an ISO 9001 and ISO 14001 registered company.
- B. Fabricator Qualifications: Fabricate Products by a competent shop that fabricates phenolic interior solid phenolic laboratory countertops comparable to those required for this Project with a proven track record of satisfactory performance.

**ABET LAMINATI Spec Note: Edit text in square brackets to reflect the specifics of the project.**

- C. Mock-ups: Construct mock-ups at Project site to validate decisions made through submittals, to show esthetic qualities, and to establish benchmarks for quality of fabrication and installation. **[Conform to requirements of Section 01 43 00, Quality Assurance.]**

**ABET LAMINATI Spec Note: Keep the paragraph for a large-scale mockup. Indicate whether the extent of the mock-up will be indicated on Drawings or directed on-site by the Consultant. If mock-up location is indicated on Drawings, indicate the portion of the building that is to be represented by the mockup or sketch the mockup as a separate element.**

1. Construct mockup of typical solid phenolic laboratory countertops assembly including supports, attachments, and accessories **[as indicated on Drawings] [as directed on site]**.

**ABET LAMINATI Spec Note: Edit paragraph below to establish whether mock-ups must be demolished at the end of the Project, or if they can be incorporated into the final building.**

2. Mock-up at time of Substantial Performance of the Work: **[Demolish and remove.] [May be incorporated in the completed Work if intact and undamaged.]**

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Conform to manufacturer's written instructions for delivery, storage and handling.
- B. Deliver solid phenolic laboratory countertops and accessories undamaged and undeformed. Provide protection to solid phenolic laboratory countertops during transportation and handling.
- C. Unload, store, and erect solid phenolic laboratory countertops such way that are not bent, warped, twisted, or suffer other damage.
- D. Store solid phenolic laboratory countertops horizontally on platforms or pallets, covered with appropriate weathertight and ventilated covering. Provide protective polyethylene sheet between pallet and the first element, as well as on top of stack.
- E. Provide steel or nylon straps to secure elements to pallets to prevent them from moving. Protect edges and corners.
- F. Do not store solid phenolic laboratory countertops in contact with other materials that may discolor, dent, or otherwise affect them.

## 1.9 FIELD CONDITIONS

- A. Environmental Restrictions: Do not deliver or install countertops until building is enclosed, wet work is complete, and HVAC system is operational and will maintain temperature and relative humidity levels equal to occupancy levels for remainder of construction period.

## 1.10 WARRANTY

**ABET LAMINATI Spec Note: Abet Laminati's standard warranty is a 1-year limited warranty. Contact Abet Laminati if special warranty requirements are needed for this project.**

- A. Extended Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty certificate, in which manufacturer undertakes to repair or replace components of solid phenolic laboratory countertops systems that exhibit material defects within warranty period. Defects include, but are not limited to, spontaneous splitting, splintering, rot, or delamination caused by material or manufacturing flaws.
- B. Manufacturer's warranty is in addition to, and does not supersede, any other rights that Owner may have under Contract Documents.
- C. Warranty Period: One year from date of completion of solid phenolic laboratory countertops installation.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

**ABET LAMINATI Spec Note: "Labgrade" has only been tested to SEFA 8 (stain and reagent testing only), whereas "Labgrade Plus" has been tested to SEFA 3 and SEFA 8. "Labgrade Plus" is recommended for applications in strong chemical conditions, whereas "Labgrade" is appropriate when milder chemicals are expected (e.g. a laboratory in a high school)**

- A. Basis-of-Design: Materials specified in this Section are based on **["Labgrade"] ["Labgrade Plus"]** as supplied by ABET Inc; 60 West Sheffield Ave.; Englewood, New Jersey 07631 ; Tel: 1-800-223-2238; web: <https://abetlaminati.com>

**ABET LAMINATI Spec Note: Retain one of the two options below to either permit or preclude other manufacturers from bidding on the Work of this Section.**

- B. **[Substitution Limitations: No further substitutions are acceptable.]**

**OR**

- C. **[Substitution Limitations: Conforming to requirements of Section 01 25 00, Substitution Procedures and as follows:**
  - 1. **Consultant will consider requests for substitution if received [10] days before Bid Closing Deadline. Requests received after that time will be rejected. Consultant will consider requests for substitution when following conditions are satisfied:**
    - a. **Requests for substitution include a list of at least five similar projects of equivalent size where products have been installed for a minimum of five years.**
    - b. **Requested substitution does not require extensive revisions to the Contract Documents.**
    - c. **Requested substitution is consistent with the Contract Documents and will produce indicated results.**
    - d. **Requested substitution will not adversely affect construction schedule.**
    - e. **Requested substitution provides specified warranty.]**

## **2.2 SYSTEMS AND FABRICATORS**

- A. Fabrication of solid phenolic laboratory countertops must be undertaken by one of the following fabricators:
1. Abet USA Inc; N48W37031 E Wisconsin Ave; Oconomowoc, WI; 53066
  2. Fabricator approved by Abet USA Inc.

## **2.3 REGULATORY REQUIREMENTS**

- A. Buy America Act: Provide solid phenolic laboratory countertops that are manufactured in the USA and comply with Buy America Act for the “domestic end product” category (i.e. cost of components mined, produced, or manufactured in the USA exceeds fifty percent of the cost of all its components).

## **2.4 SUSTAINABILITY CHARACTERISTICS**

- A. General Emissions Evaluation: solid phenolic laboratory countertops must be tested and proven to be compliant using the applicable exposure scenario per CDPH Standard Method v1.2–2017.
- B. Composite Wood Evaluation: Composite wood, as defined by CARB ATCM, must demonstrate low formaldehyde emissions consistent with certification requirements for ULEF or NAF resins.

**ABET LAMINATI Spec Note: For projects desiring to use wood from sustainably harvested sources, Abet Laminati can offer FSC certified wood. Review the requirements of the project and edit the paragraph below accordingly. Delete the paragraph and subsequent paragraphs below if the project does not plan to use FSC certified wood.**

- C. **[Wood components used in phenolic countertop assembly must be FSC-certified.]**

**ABET LAMINATI Spec Note: Retain text in square brackets below if the project is pursuing LEED V4 certification.**

- D. **[Sustainable Design Intent: Comply with project requirements intended to achieve sustainable design, measured and documented according to the LEED Green Building Rating System of the Canadian Green Building Council – LEED V4.1.]**

## **2.5 PERFORMANCE REQUIREMENTS**

- A. General Performance: Materials provided for this Section must demonstrate compliance with SEFA 8 PH, "Laboratory Grade Phenolic Casework," as determined by testing by independent test agencies.

**ABET LAMINATI Spec Note: Keep the paragraphs below pertaining to SEFA 3 only if specifying “Labgrade Plus”. Due to variations in compositions, finish formulas and application procedures, results vary from manufacturer to manufacturer. SEFA 3 requires laboratory-grade work surface finishes to result in no more than four Level 3 ratings. The first option allows for stricter criteria than SEFA 3 minimums and represents the superior**



**chemical resistance of Abet Laminati's products. The second option meets the minimum requirements outlined in SEFA 3.**

- B. Chemical Resistance: Materials provided for this Section must demonstrate compliance with SEFA 3, " Laboratory Work Surfaces," with **[no more than 2, Level 2 ratings (i.e. Good – A clearly discernible change in color or gloss but no significant impairment of surface life or function.)] [no more than 4, Level 3 ratings (i.e. Fair – Objectionable change in appearance due to discoloration or etch, possibly resulting in deterioration of function over an extended period of time)]** as determined by testing by independent test agencies:
1. Reagents: Amyl Acetate, Ethyl Acetate, 98% Acetic Acid, Acetone, Ethyl Alcohol, Methyl Alcohol, 28% Ammonium Hydroxide, Benzene, Carbon Tetrachloride, Chloroform, Cresol, Dimethylformamide Dioxane, Ethyl Ether, 37% Formaldehyde, 90% Formic Acid, Furfural, Gasoline, 37% HCl, 48%HCl, 30% Hydrogen Peroxide, Iodine, MEK, Methylene Chloride, Naphthalene, 20% Nitric Acid, 30% Nitric Acid, 70% Nitric Acid, 90% Phenol, 85% Phosphoric Acid, Silver Nitrate, 10% Sodium Hydroxide, 20% Sodium Hydroxide, 40% Sodium Hydroxide, Sodium Hydroxide Flake, 33% Sulfuric Acid, 77% Sulfuric Acid, 96% Sulfuric Acid, 1:1 ratio of 77% Sulfuric Acid and 70% Nitric Acid, Toluene, Trichloroethylene, Xylene, Zinc Chloride.

## 2.6 SOLID PHENOLIC MATERIAL

- A. Provide chemical-resistant laboratory compact solid phenolic laboratory countertops conforming to BS EN 438-4 **[or NEMA LD3, Grade CGS]** consisting of a core layer fabricated from sheets of kraft paper impregnated with phenolic resins, and with the following minimum characteristics:

**ABET LAMINATI Spec Note: The following are salient characteristics of solid phenolic laboratory countertops intended for outdoor use. Refer to the "Labgrade" and "Labgrade" Plus technical data sheets if additional performance criteria relevant to the project are required to be listed in addition to those indicated here.**

1. Standard manufacturing dimensional tolerances (EN 438-2)
  - a. Length: 10 mm / 0
  - b. Width: 10 mm / 0
  - c. Thickness :  $\pm 0.5$  mm
  - d. Squareness:  $\leq 1.5$  mm/m
2. Mechanical characteristics
  - a. Flexural strength (EN ISO 178): 90 MPa (13,053 psi)
  - b. Modulus of Elasticity (EN ISO 178): 10,000 MPa (1,450,000 psi) minimum
3. Scratch Resistance: (EN438): Minimum 5 N
4. Stain Resistance (SEFA 3): no more than two reagents with rating 2
5. Resistance to Boiling Water (EN 438) Maximum 2% weight and thickness increase
6. Dimensional Stability at High Temperature (EN 438): 0.3 % maximum length change; 0.6 % maximum width change

7. Impact Strength - Large Ball Drop Test (EN 438): No breaks in surface and maximum 7 mm at 1.8 m drop
- B. Sheet Dimensions: Manufacturer's standard 3660 mm x 1590 mm (144 inches x 62.6 inches)
- C. Finish: Manufacturer's standard **[single sided]** **[double sided]** decorative finish.

**ABET LAMINATI Spec Note: Black edges are standard and do not come at a cost premium. "Colour-through" cores are available at a premium and are manufactured with a matching color going through the entire core. Not all finishes are available with "color-through" finishes. Contact manufacturer to ensure finishes specified are available as "color-through"**

- D. Edges:
  1. Colours: manufacturer's standard **[black edges]** **[brown edges]** **["color-through" edges]**
  2. Construction: **[Flat with continuous drip groove on underside at perimeter]** **[Marine-edge with applied raised edge.]**
  3. Edge Finishing: **[Beveled]** **[Rounded]**.
- E. Thickness: Not less than **[6 mm (1/4 inch)]** **[8 mm (5/16 inch)]** **[16 mm (5/8 inch)]** **[19 mm (3/4 inch)]** **[25 mm (1 inch)]**
- F. Colours and patterns: **[764 (Black)]** **[763 (White)]** **[765 (Grey)]** **[766 (Speckled)]** **[Selected from full range of manufacturer's finishes]**

## **2.7 FABRICATION**

- A. Provide units with smooth surfaces, within a consistent plane, devoid of defects. Exposed edges and corners must be straight and uniformly beveled. Provide 25 mm (1 inch) overhang at front and ends.
- B. Manufacture countertops according to profiles, dimensions, and details indicated on reviewed Shop Drawings.
- C. Allow countertops and substrates to acclimatize for at least 48 hours prior to beginning fabrication operations. Conform to manufacturer's instructions.
- D. Countertop lines, breaks, and angles must be straight and true, with no warping or buckled surfaces.
- E. Provide openings and cutouts for hardware, appliances, plumbing, electrical, and other components in shop. Use templates or rough-in diagrams to properly dimension and shape openings.
- F. Fabricate with cut-outs to fit sinks, holes for utility fittings and accessories, and butt joints assembled with epoxy adhesive and concealed metal splines.
- G. Cut, sand and round edges to a smooth finish. Countertop edges "as-provided" from solid phenolic laboratory countertops manufacturer's factory are not permitted in the final installation.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, locations, and existing conditions to ensure compliance with required installation tolerances, solid phenolic laboratory countertop supports, and other factors that might impact performance of the work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected. Commencement of work implies acceptance of in-place conditions.

### **3.2 PREPARATION**

- A. Condition countertops to humidity levels in installation zone prior to installation.
- B. Verify shop-fabricated work for completeness and correctness.

### **3.3 COUNTERTOP INSTALLATION**

- A. Install solid phenolic laboratory countertops in accordance with SEFA 2, and manufacturer's written instructions, in orientations, sizes, and locations indicated on reviewed Shop Drawings.
- B. Align top and edge surfaces plane, with joints flush and inner supports positioned to prevent distortion. Place joints where indicated on reviewed Shop Drawings.
- C. Secure solid phenolic laboratory countertops using manufacturer's Z-fasteners or recommended adhesives; use at least two fasteners for each cabinet front, end and back.
- D. Seal gaps between countertops and backsplashes with manufacturer's recommended sealants.
- E. Shim as required with concealed shims.

### **3.4 CLEANING AND PROTECTION**

- A. Remove temporary protective covers and strippable films before installing solid phenolic laboratory countertops. Where films are provided on both sides of countertops, ensure both films are removed at the same time to avoid countertop warpage.
- B. Clean completed surfaces of solid phenolic laboratory countertops according to manufacturer's instructions.
- C. Replace broken or damaged solid phenolic laboratory countertops that cannot be repaired successfully using finish touchup or equivalent minor repair operations.

END OF SECTION