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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 MasterFormatTM, SectionFormatTM, and PageFormatTM. It is also written with metric and imperial units of measurement.

ABET LAMINATI manufactures and sells solid phenolic panel 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.

1. GENERAL
   1. SUMMARY
      1. Section Includes: Provide labour, materials, products, equipment and services to complete the Phenolic interior paneling work specified herein. This includes, but is not necessarily limited, to:
         1. Fabricated interior solid phenolic panel systems for **[walls]** **[ceilings] [and] [soffits]**.
         2. Support and fastening systems.
         3. Auxiliary materials required for a complete installation.
      2. 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.
         1. Section 04 22 00, Concrete Unit Masonry: for provision of masonry substrates.
         2. Section 07 42 34, Solid Phenolic Panels: for provision of exterior solid phenolic panels
         3. Section 09 21 16, Gypsum Board Assemblies: for provision of gypsum board substrates.
         4. Section 07 92 00, Joint Sealants: for provision of joint sealants.
  1. REFERENCES
     1. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.
     2. All reference amendments adopted prior to the Bid Closing date of this Project shall be applicable to this Project.
     3. 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.

* + 1. American Society for Testing and Materials (ASTM)
       1. ASTM D732-17: Standard Test Method for Shear Strength of Plastics by Punch Tool
       2. ASTM D785-08: Standard Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials
    2. British European Standards
       1. BS EN 438-4: 2016: High-pressure decorative laminates (HPL). Sheets based on thermosetting resins (usually called laminates)
    3. International Organization for Standardization
       1. ISO 178:2019: Plastics — Determination of flexural properties
       2. ISO 527-1:2019: Plastics - Determination of tensile properties - Part 1: General principles
       3. ISO 9001:2015, Quality management systems
       4. ISO 14001:2015, Environmental management systems
       5. ISO 14025:2006, Environmental labels and declarations — Type III environmental declarations — Principles and procedures
    4. 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
    5. Underwriters Laboratories of Canada (CAN/ULC)
       1. CAN/ULC S102-2018: Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies
    6. 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. 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 panels. Review the information below and update as necessary to incorporate particular requirements about the meeting.

* + 1. 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 panel installation, including manufacturer's written instructions.
       3. Verify condition of sub-framing and supports, including alignment and connection to supporting elements, and confirm that such framing meets manufacturer's acceptance criteria.
       4. Confirm requirements for temporary protection of solid phenolic panel assemblies during and after installation.
       5. Review and establish procedures for repairing panels that have been damaged during or after installation.
       6. Maintain records of proceedings, including remedial measures and action items. Provide copy of meeting records to each participant.
    2. Coordination: Prior to installing phenolic interior wall paneling system, verify sizes and locations of framing, furring, blocking, and other reinforcements to ensure system can be erected as indicated on reviewed Shop Drawings.
  1. ACTION SUBMITTALS

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

* + 1. Make Submittals in accordance with provisions indicated in **[Section 01 33 00, Submittal Procedures.]**
    2. Product Data: Submit product literature and data sheets for solid phenolic wall panels indicating product features, performance criteria, physical dimensions, finishes and limitations.
    3. 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.

* + - * 1. Environmental Product Declarations (EPD): Submit Product-specific Type III EPD conforming to ISO 14025 **[or other approved environmental product declaration framework recognized by CaGBC]**.
        2. 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.

* + - 1. **[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 panel 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.

* + - 1. Low-Emitting Materials:
         1. Submit certifications indicating compliance with general emissions evaluation per CDPH Standard Method v1.2 as specified in this Section.
         2. 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)
    1. Shop Drawings: Show the following:
       1. Submit plans, elevations, and sections.
       2. Solid phenolic panel manufacturing and installation details, including edge conditions, joints, panel profiles, corners, anchorages, attachment assembly, trims, and reveals

ABET LAMINATI Spec Note: Keep the paragraph below only if the work of this project is extensive enough to necessitate engineering design.

* + 1. Delegated-Design Submittals: Submit Shop Drawings and submittals for solid phenolic wall panels that have been signed and sealed by a Professional Engineer licensed in the jurisdiction of the Project, and who is responsible for their preparation.
    2. Samples: 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 panel accessories.
  1. INFORMATIONAL SUBMITTALS
     1. Sample Warranties: Submit sample warranties for extended warranties indicated in this Section for Consultant's review.
     2. 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 phenolic interior paneling with fire performance requirements stipulated in this Section.
     3. Certificates:
        1. Submit proof of manufacturer's ISO 9001 registration and compliance.
        2. Submit proof of manufacturer's ISO 14001 registration and compliance.
  2. CLOSEOUT SUBMITTALS
     1. Maintenance Data: Submit solid phenolic panel maintenance data for inclusion in building's operation and maintenance manuals.
  3. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Provide Products from a manufacturer with minimum 20 years of experience and capable of providing solid phenolic panel systems that meet or exceed performance requirements indicated in this Section.
        1. Manufacturer must be an ISO 9001 and ISO 14001 registered company.
     2. Fabricator Qualifications: Fabricate Products by a competent shop that custom fabricates phenolic interior wall panels comparable to those required for this Project with a proven track record of satisfactory performance.

ABET LAMINATI Spec Note: ABET Corporation provides installation training to ensure that installers are acquainted with its products. Retain text in square brackets below to limit installer selection to persons or organizations who have previously completed installation training.

* + 1. Installer Qualifications: Provide competent installers **[who are trained and approved by manufacturer, ]** and have a minimum of five years' experience in the application of the Products, systems, and assemblies indicated in this Section.

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

* + 1. Mock-ups: Construct mock-ups at Project site to validate decisions made through submittals, to show aesthetic 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 panel assembly including corner, soffits, 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.

* + - 1. 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. DELIVERY, STORAGE, AND HANDLING
     1. Conform to manufacturer’s written instructions for delivery, storage and handling.
     2. Deliver phenolic interior paneling and accessories undamaged and undeformed. Provide protection to phenolic interior paneling during transportation and handling.
     3. Unload, store, and erect phenolic interior paneling such way that are not bent, warped, twisted, or suffer other damage.
     4. Store phenolic interior paneling horizontally on platforms or pallets, covered with appropriate weathertight and ventilated covering. Provide protective polyethylene sheet between pallet and the first panel, as well as on top of stack.
     5. Provide steel or nylon straps to secure panels to pallets to prevent them from moving. Protect edges and corners.
     6. Store phenolic interior paneling in a dry location with positive slope for water drainage. Do not store phenolic interior paneling in contact with other materials that may discolour, dent, or otherwise affect them.
  2. FIELD CONDITIONS
     1. Environmental Restrictions: Do not deliver or install paneling 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.
  3. WARRANTY

ABET LAMINATI Spec Note: Abet Laminati’s standard warranty is a 10-year limited warranty. Contact Abet Laminati if special warranty requirements are needed for this project.

* + 1. Extended Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty certificate, in which manufacturer undertakes to repair or replace components of solid phenolic panel 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.
    2. Manufacturer's warranty is in addition to, and does not supersede, any other rights that Owner may have under Contract Documents.
    3. Warranty Period: Ten years from date of completion of solid phenolic panel installation.

1. PRODUCTS
   1. MANUFACTURERS
      1. Basis-of-Design: Materials specified in this Section are based on “Stratificato F1” as supplied by Abet Corporation; 5195 Timberlea Blvd Mississauga ON L4W 2S3; 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.

* + 1. **[Substitution Limitations: No further substitutions are acceptable.]**

**OR**

* + 1. **[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:** 
          1. **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.**
          2. **Requested substitution does not require extensive revisions to the Contract Documents.**
          3. **Requested substitution is consistent with the Contract Documents and will produce indicated results.**
          4. **Requested substitution will not adversely affect construction schedule.**
          5. **Requested substitution provides specified warranty.]**
  1. SYSTEMS AND FABRICATORS
     1. Fabrication of phenolic interior paneling and associated support systems must be undertaken by one of the following fabricators:
        1. Abet Corporation; 5195 Timberlea Blvd Mississauga ON L4W 2S3; Tel: 1-800-223-2238; web: <https://abetlaminati.com>
        2. Fabricator approved by Abet Corporation.
  2. REGULATORY REQUIREMENTS
     1. Surface Burning Characteristics: Solid phenolic wall panel system must be tested in accordance with CAN/ULC S102 with the following results:
        1. Flame spread value (FSV): 10 or less.
        2. Smoke Developed Value (SDV): 70 or less.
  3. DESIGN/PERFORMANCE REQUIREMENTS
     1. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
  4. SUSTAINABILITY CHARACTERISTICS
     1. General Emissions Evaluation: Phenolic interior paneling must be tested and proven to be compliant using the applicable exposure scenario per CDPH Standard Method v1.2–2017.
     2. 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.

* + 1. **[Wood components used in phenolic panel assembly must be FSC-certified.]**

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

* + 1. **[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.]**
  1. SOLID PHENOLIC PANEL SYSTEM (PNL-#)
     1. Provide interior-grade compact solid phenolic panels 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 phenolic interior paneling intended for outdoor use. Refer to the MEG F1 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)
         1. Length: - 0 + 10 mm
         2. Width: - 0 + 10 mm
         3. Thickness : ± 0.5 mm
         4. Squareness: ≤ 1.5 mm/m
      2. Standard dimensional tolerances for fabrications and layouts (EN 438-2)
         1. Length : ± 1 mm
         2. Width : ± 1 mm
         3. Squareness: ≤ 1 mm/m
      3. Mechanical characteristics
         1. Flexural strength (EN ISO 178): 110 MPa (16,000 psi)
         2. Modulus of Elasticity (EN ISO 178): 10,000 MPa (1,450,000 psi) minimum
         3. Tensile Strength (ISO 527): 89.6 MPa (13,000 psi) minimum
         4. Shear Strength (ASTM D732): Approx. 49.5 kN (11,128 lbf)
      4. Scratch Resistance: (EN438): Minimum 2 N
      5. Stain Resistance (EN 438): Groups 1 & 2: Grade 5; Groups 3 & 4: Grade 4
      6. Resistance to Boiling Water (EN 438) Maximum 2% weight and thickness increase
      7. Abrasion Resistance (EN 438) : Minimum 150 cycle IP; Minimum 350 cycle abrasion
      8. Dimensional Stability at High Temperature (EN 438): 0.25 % maximum length change; 0.55 % maximum width change
      9. Water Absorption after immersion 500 hours: Max 4% thickness increase
      10. Impact Strength - Large Ball Drop Test (EN 438): No breaks in surface and maximum 10 mm at 2.5 m drop
      11. Rockwell Hardness (ASTM D785): Approximately 95 HRE
      12. Panel Nominal Thickness: 8 mm (5/16 inch)

SPEC NOTE: Confirm décor/pattern/finish for availability of sheet sizes prior to making selections. Contact ABET LAMINATI for additional information.

* + 1. Sheet Dimensions: **[3050mm x 1300mm]** **[4200mm x 1300mm]** **[4200mm x 1610mm]** **[2440 mm x 1220mm]** **[3660 x 1610mm]** **[4200x1860mm]** **[As indicated on Drawings.]**
    2. Joints between panel edges: As noted on reviewed Shop Drawings, but not less than 3 mm (of 1/8 inch)
    3. Finish: Manufacturer’s standard double sided decorative finish.

ABET LAMINATI Spec Note: Black and brown 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 colour going through the entire core

* + 1. Exposed Panel Edges: manufacturer’s standard **[black edges]** **[brown edges]** **[“colour-through” edges]** **[aluminum extrusions/reveals]** **[stainless-steel channels/reveals]**

ABET LAMINATI Spec Note: Use the paragraph below if final colour selections have not yet been made. Since various colour / pattern selections have cost implications and introduce uncertainty to the project’s cost management systems, attempt to limit the list to selections that will complement the building’s proposed aesthetics.

* + 1. Colours and patterns: Allow Consultant to select colours and patterns from the following collections Abet Stratificato interior collection**[Abet standard finishes SEI (satin)]** **[Sei Due (Matte)]** **[Lucida (Gloss)]** **[Climb]**

**OR**

ABET LAMINATI Spec Note: Use the paragraph below if final colour / pattern selections are known. Specifying the panel's exact colours / patterns usually results in more accurate pricing from bidders.

* + 1. Colours and patterns: **[Insert colour/pattern]**
    2. Fastener visibility: **[exposed fasteners]** **[concealed fasteners]** assembly.
  1. AUXILIARY MATERIALS
     1. Furring, Blocking, Shims, and Hanging Strips: **[Aluminum J-channel extrusions]** **[Galvanized steel Z-clips]** **[Fire-retardant-treated softwood lumber]** designed to maintain minimum 19 mm (3/4 inch) ventilation space behind paneling.
     2. Material visible after assembly of wall panel: finished to be inconspicuous in final installation. Paint as required to be concealed behind panel joints.
     3. Anchors and fasteners for phenolic interior paneling: self-tapping screws or other fasteners suitable for withstanding design loads and stresses.

ABET LAMINATI Spec Note: Delete paragraph below if fasteners are not exposed.

* + - 1. **[Exposed Fastener Head Finish: Provide plastic caps or factory-applied coating in colour to match phenolic interior paneling.]**
      2. Basis-of-Design Products: “Ejot JT3” by EJOT Holding GmbH & Co. KG.
  1. FABRICATION
     1. Unless otherwise indicated in this Section, fabricate phenolic interior wall paneling in accordance with minimum requirements indicated in Section 08, "Wall/Ceiling Surfacing & Partitions" of North Architectural Woodwork Standards (NAAWS), latest edition.
     2. Allow panels and substrates to acclimatize for at least 48 hours prior to beginning fabrication operations. Conform to manufacturer’s instructions.
     3. Fabricate and finish phenolic interior paneling and accessories in the shop using techniques and processes indicated in manufacturer's written fabrication instructions.
     4. Panel lines, breaks, and angles must be straight and true, with no warping or buckled surfaces.
     5. 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.
     6. Cut, sand and round edges to a smooth finish. Panel edges “as-provided” from solid phenolic manufacturer’s factory are not permitted in the final installation.

1. EXECUTION
   1. EXAMINATION
      1. Examine substrates, locations, and existing conditions to ensure compliance with required installation tolerances, solid phenolic panel supports, and other factors that might impact performance of the work.
      2. Proceed with installation only after unsatisfactory conditions have been corrected. Commencement of work implies acceptance of in-place conditions.
   2. PREPARATION
      1. Condition panels to humidity levels in installation zone prior to installation.
      2. Verify shop-fabricated work for completeness and correctness.
   3. SOLID PHENOLIC PANEL INSTALLATION
      1. Install phenolic interior paneling in accordance with manufacturer's written instructions, in orientations, sizes, and locations indicated on reviewed Shop Drawings.
      2. Install panel system with minimum 19 mm (3/4 inch) air space behind panels to permit ventilation.
      3. Install panels straight, level, and plumb. Securely fasten phenolic interior paneling and other components to structure, while allowing for thermal and structural movements.
      4. Shim as required with concealed shims.
   4. CLEANING AND PROTECTION
      1. Remove temporary protective covers and strippable films before installing phenolic interior paneling. Where films are provided on both sides of panels, ensure both films are removed at the same time to avoid panel warpage.
      2. Clean completed surfaces of phenolic interior paneling according to manufacturer's instructions.
      3. Following installation of phenolic interior paneling, clean obstructions, dirt, and sealants from weep holes and drainage channels.
      4. Replace broken or damaged phenolic interior paneling that cannot be repaired successfully using finish touchup or equivalent minor repair operations.

END OF SECTION