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ABET LAMINATI Spec Note: This section should serve as a guideline only and should be edited by a knowledgeable person to meet the requirements of each specific Project.

ABET LAMINATI manufactures and sells solid phenolic plank siding materials. ABET LAMINATI does not practice architecture or engineering. Therefore, the design responsibility remains with the architect, or engineer. 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 plank siding work specified herein. This includes, but is not necessarily limited, to:
 - 1. Fabricated exterior rear-ventilated solid phenolic plank siding systems.
 - 2. Water-resistive barriers.
 - 3. 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.
 - 1. Related requirements provided below are for convenience purposes only.
 - a. Section 07 21 00, Thermal Insulation: for provision of insulation.
 - b. Section 07 27 00, Air Barriers: for provision of air barriers.
 - c. Section 07 61 00, Sheet Metal Flashing and Trims: for provision of miscellaneous flashings and accessories.
 - d. Section 07 92 00, Joint Sealants: for provision of joint sealants.

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.
- D. American Architectural Manufacturers Association
 - 1. AAMA 501.2-15: Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls and Sloped Glazing Systems
- E. American Society for Testing and Materials (ASTM)
 - 1. ASTM A653 / A653M-20: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
 - 2. ASTM B317/B317M-07(2015): Standard Specification for Aluminum-Alloy Extruded Bar, Rod, Tube, Pipe, Structural Profiles, and Profiles for Electrical Purposes (Bus Conductor)
 - 3. ASTM C645-18: Standard Specification for Nonstructural Steel Framing Members
 - 4. ASTM E2556/E2556M-10(2016) Standard Specification for Vapor Permeable Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment
- F. British European Standards
 - 1. BS EN 438-2: 2016: High-pressure decorative laminates (HPL). Sheets based on thermosetting resins (usually called laminates) - Determination of properties
 - 2. BS EN 438-6: 2016: High-pressure decorative laminates (HPL). Sheets based on thermosetting resins (usually called laminates)
- G. 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
- H. US Green Building Council (USGBC)
 - 1. LEED Version 4.0, LEED (Leadership in Energy and Environmental Design): LEED BD+C: Core and Shell Development
- I. American Society for Testing Materials

1. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
 2. ASTM E330 Standard Test Method for Structural Performance of Exterior Curtain walls
- J. 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
- K. California Department of Housing and Community Development
1. Wildland-Urban Interface (WUI) For Exterior Sidings and Sheathings

1.3 DEFINITIONS

- A. Drained / back-ventilated rainscreen cladding (D/BV): Rainscreen system that deflects and drains off the majority of rainwater using the outermost surface of the wall. Joints are intended to withstand the kinetic action of wind-driven rain wind. However, no attempt is made to minimize leakage using pressure equalization or other methods.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Conduct conference at Project site.
1. Meet with Owner, Architect, solid phenolic plank siding Subcontractor, solid phenolic plank siding manufacturer's representative, structural-support Subcontractor, and Subcontractors whose work interfaces with or impacts Solid Phenolic Plank Siding, such as doors, windows, and louvres Subcontractors.
 2. Review and finalize construction schedule, as well as establish staffing, material, equipment, and facilities requirements to proceed with the work of this Section and avoid delays.
 3. Review procedures necessary for solid phenolic plank siding installation, including manufacturer's written instructions.
 4. Verify condition of sub-framing and supports, including alignment and connection to structural elements, and confirm that such framing meets manufacturer's acceptance criteria.
 5. Conduct a review of flashing, penetrations, openings, and other special details that may impact solid phenolic plank siding installation.
 6. Review regulations and requirements pertaining to insurance, certificates, as well as requirements for testing and inspections.
 7. Confirm requirements for temporary protection of solid phenolic plank siding assemblies during and after installation.
 8. Review and establish procedures for repairing siding planks that have been damaged during or after installation.

9. Maintain records of proceedings, including remedial measures and action items. Provide copy of meeting records to each participant.

B. Coordination: Coordinate work of this Section with Subcontractors providing rain drainage work, flashings, trims, sealants, and other adjacent components to ensure final installation is secure and free from air or water leakage beyond limits indicated in Contract Documents.

1.5 ACTION SUBMITTALS

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 siding planks 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:

a. Environmental Product Declarations (EPD): Submit Product-specific Type III EPD conforming to ISO 14025

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

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.

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

c. Control Measure (ATCM)

D. Shop Drawings: Show the following:

1. Solid phenolic plank siding manufacturing and installation details, including edge conditions, joints, profiles, corners, anchorages, attachment assembly, trims, flashings, closures, and accessories.

E. Delegated-Design Submittals: Submit Shop Drawings and submittals for solid phenolic siding that have been signed and sealed by a Professional Engineer licensed in the jurisdiction of the Project, and who is responsible for their preparation.

F. Samples: Submit samples minimum 305 mm (12 inches) in length by actual plank width for each exposed finish required. Include fasteners, closures, and other solid phenolic plank siding accessories.

1.6 INFORMATIONAL SUBMITTALS

- A. Sample Warranties: Submit sample warranties for extended warranties indicated in this Section for Architect'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 plank siding with fire performance requirements stipulated in this Section.
- C. Code Evaluation Reports: Submit ICC-ES or UES report validating conformity with appropriate chapters and clauses of the International Building Code.
- D. Certificates:
 - 1. Submit proof of manufacturer's ISO 9001 registration and compliance.
 - 2. Submit proof of manufacturer's ISO 14001 registration and compliance.

1.7 CLOSEOUT SUBMITTALS

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

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide Products from a manufacturer with minimum 10 years of experience and capable of providing solid phenolic plank siding systems that meet or exceed performance requirements indicated in this Section.
 - 1. Manufacturer must be an ISO 9001 and ISO 14001 registered company.
- B. 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.
- C. 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.
 - 1. Construct mockup of typical solid phenolic plank siding assembly including corner, soffits, supports, attachments, and accessories as indicated on Drawings
 - 2. Mock-up at time of Substantial Performance of the Work: May be incorporated in the completed Work if intact and undamaged.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Conform to manufacturer's written instructions for delivery, storage, and handling.
- B. Deliver solid phenolic plank siding and accessories undamaged and undeformed. Provide protection to solid phenolic plank siding during transportation and handling.

- C. Unload, store, and erect solid phenolic plank siding such way that are not bent, warped, twisted, or suffer other damage.
- D. Store solid phenolic plank siding horizontally on platforms or pallets, covered with appropriate weathertight and ventilated covering. Provide protective polyethylene sheet between pallet and the first planks, as well as on top of stack.
- E. Provide steel or nylon straps to secure planks to pallets to prevent them from moving. Protect edges and corners.
- F. Store solid phenolic plank siding in a dry location with positive slope for water drainage. Do not store solid phenolic plank siding in contact with other materials that may discolor, dent, or otherwise affect them.

1.10 FIELD CONDITIONS

- A. Weather Conditions: Begin installation only when current and anticipated weather conditions allow for proper assembly of solid phenolic plank siding in accordance with manufacturers' written instructions and warranty requirements.

1.11 WARRANTY

- 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 plank siding 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: Ten years from date of completion of solid phenolic plank siding installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design: Materials specified in this Section are based on "EasyMEG F1" Closed Joint Horizontal and Vertical as manufactured by ABET USA INC N48W37031 E. Wisconsin Ave PO Box 88 Oconomowoc, WI 53066 ;Tel: 1-800-223-2238; web: <https://abetlaminati.com>
- B. Substitution Limitations: No further substitutions are acceptable.

2.2 REGULATORY REQUIREMENTS

- A. System Fire Propagation Characteristics: Solid phenolic wall panel system must be tested to and pass the requirements of NFPA 285.

1. Flaming on, or in wall assembly: not more than 2.75 m above opening.
 2. Maximum heat flux during flame exposure on wall assembly: not more than 14.5 kW/m² when measured at 3.5 m above opening.
- B. Surface Burning Characteristics: in accordance with ASTM E84 with the following results:
1. Flame Spread Index (FSI): 10 or less.
 2. Smoke Developed Index (SDI): 70 or less.

2.3 DESIGN/PERFORMANCE REQUIREMENTS

- A. Engineering Design: Employ the services of a Professional Engineer licensed to practice in the jurisdiction of the Project, and carrying professional liability insurance, to design and certify solid phenolic siding assemblies, including their attachment to the building's framing systems.
- A. Structural Performance: Provide solid phenolic panel systems capable of withstanding the effects of the live and dead loads in accordance with requirements of ASTM E330:
1. Wind Loads: As indicated on Drawings, but not more than 62 psf (2.96 kPa) allowable transverse load.
 2. Deflection Limits: no greater than 1/180 of the span.
- B. Design system as a drained / back-ventilated rainscreen cladding. Provide minimum 25 mm (1 inch) air space behind siding unless otherwise indicated.
- C. Design drainage system to allow free flow of water from wall's interior to the exterior. Provide flashings and accessories to prevent moisture from entering the wall or to divert it to the exterior. Ensure drained water does not discolor architectural finishes, pool in puddles, or create icicles.
- D. 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.

2.4 SUSTAINABILITY CHARACTERISTICS

- A. General Emissions Evaluation: solid phenolic plank siding 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.
- C. Wood components used in phenolic plank siding assembly must be FSC-certified.

2.5 SOLID PHENOLIC PLANK SIDING SYSTEM (PNL-#)

- A. Provide exterior-grade compact solid phenolic siding planks conforming to BS EN 438-6 and 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:
1. Accelerated Weathering Test: to ASTM G155; minimum 4,500 hours exposure with no cracking, checking, crazing or other factors that may affect performance after exposure.
 2. Freeze-thaw testing: To ICC-ES AC92; Pass 10 freeze-thaw cycles cycling between 120 deg F to -20 deg F (49 deg C to -29 deg C)
 3. Bond Strength: to ICC-ES AC92 ASTM C297; average tensile stress of minimum 10 psi (69 kPa) for all specimens.
 4. Flexural Strength: to ICC-ES AC92 and ASTM D1037. Average flexural strengths of freeze-thaw and wet specimens must minimum 60% of the average strength of dry-control specimens to pass.
 5. Salt Spray Resistance: to ICC-ES AC92 and ASTM B117; no deleterious effects such as cracking, checking, crazing, erosion, delamination, or any other distress that might affect performance as an exterior wall covering after 300 hours of exposure to salt solution.
 6. Water Resistance: to ICC-ES AC92 and ASTM D2247; no deleterious effects such as cracking, checking, crazing, erosion, delamination, or any other distress that might affect performance as an exterior wall covering after 14 days of exposure to water.
 7. Fastener Pull-Through: to ICC-ES AC92 and ASTM D1037; average load of not less than 1442 lbs. (6.4 kN).
- B. Plank Nominal Thickness: 8 mm (5/16 inch)
- C. Attachment system: Manufacturer's standard attachment system suitable for EasyMEG Closed Joint Horizontal or Vertical siding configurations.
- D. Plank Dimensions: 120 inches x 8.18 inches (3050 mm x 208 mm) 120 inches x 7.8 inches (3050 mm x 200 mm face) Or As indicated on Drawings.
- E. Finish: Manufacturer's standard UV-resistant single sided decorative. Consultant to select from Abet Laminati's Standard collection in a SEI (satin) finish produced with FSC papers
- F. Colors and patterns: Allow Architect to select colors and patterns from the following collections Abet Laminati's MEG and EasyMEG collection.

2.6 AUXILIARY MATERIALS

- A. Substructure: manufacturer's standard clip system fabricated from aluminum extrusions as specified below and capable of providing joint aesthetic indicated in this Section.
1. Aluminum extrusions: Aluminum alloy to 6063-T5 or 6063-T6 J-channels and hat-channels conforming to ASTM B317 or ASTM B221 attached to existing building structure and designed to support cladding panels.

2. Material visible after assembly of siding planks: finished to be inconspicuous in final installation. Paint as required to be concealed behind open joints.
 3. Basis-of-Design Products: EasyMEG By Abet Laminati Closed Joint Attachment system. EZMR EasyMEG Rail and EZMC clips for vertical and horizontal attachment.
- B. Bird and Insect Screening: Aluminum mesh with minimum wire diameter of 0.012 inch (0.30 mm), painted as necessary to be concealed behind siding open joints. Screening must provide at least 50% open area.
- C. Accessories: as required for full weathertight siding system. Include starter strips, edge trims, flashings, closures, corner caps and similar components. Unless otherwise indicated, ensure accessories are fabricated from aluminum to match to solid phenolic plank siding finishes.
- D. Fasteners for Siding Planks: Stainless steel self-tapping screws or other fasteners suitable for withstanding design loads and stresses.
- E. Fasteners for Miscellaneous Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten miscellaneous metal framing members to substrates.
- F. Water Resistive Barrier (WRB): to ASTM E2556/E2556M, UV-Resistant, 3-layer tear-resistant spun-bonded polypropylene (PP) fabric. Product must be designed for application with open-joint cladding systems.
1. Acceptable Products:
 - a. "DELTA®FASSADE S" by Dörken Systems, Inc.
 - b. "Tyvek Commercial Wrap" or "Tyvek Commercial Wrap D" by Dupont
 - c. "WeatherMate" or "WeatherMate Plus" by Dow Chemical Company
 - d. "RevealShield" by VaproShield
 - e. "GreenGuard C500 Building Wrap", "GreenGuard C2000 Building Wrap", "GreenGuard Classic Wrap" (a.k.a. Lowes Housewrap), or "GreenGuard RainDrop 3d" by Pactiv Building Products
 - f. "R-Guard Spray Wrap" or "R-Guard MVP" by Prosoco.
- G. Air Barrier/Vapor Retarder: As specified in [Section 07 27 00, Air Barriers.
- H. Insulation: As specified in Section 07 21 00, Building Insulation.

2.7 FABRICATION

- A. EasyMEG Plank siding must be provided in the US by The Manufacturer "Abet USA Inc". No other fabricators are permitted.
- B. Planks must be made in the USA by Abet USA Inc
- C. Planks to be provided free of defects and ready to install in the specified size.
- D. Plank lines, breaks, and angles must be straight and true, with no warping or buckled surfaces.

- E. Cut, sand and round edges to a smooth finish for any field cut Planks.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, locations, and existing conditions to ensure compliance with required installation tolerances, solid phenolic plank siding supports, and other factors that might impact performance of the work.
- B. Ensure framing, girts, angles, channels, studs, and other support components and attachments are installed within alignment tolerances specified by solid phenolic plank siding manufacturer.
- C. Where applicable, verify that air-barriers, vapor-retarders, and water-resistive barriers have been properly installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Commencement of work implies acceptance of in-place conditions.

3.2 PREPARATION

- A. Install manufacturers supplied sub-framing, furring and other miscellaneous support members and anchorages according to solid phenolic plank siding manufacturer's written recommendations. Space sub-framing channels at interval indicated on reviewed Shop Drawings.
- B. Install water resistive barrier behind solid phenolic siding planks in accordance with water resistive barrier manufacturer's instructions.

3.3 SOLID PHENOLIC PLANK SIDING INSTALLATION

- A. Install solid phenolic plank siding in accordance with the manufacturer's written instructions, in the orientations, sizes, and locations indicated on Drawings. Unless otherwise indicated in manufacturer's installation instructions or on reviewed Shop Drawings, install siding planks perpendicular to supports.
- B. Securely fasten solid phenolic plank siding and other components to structure, while allowing for thermal and structural movements.
- C. Install accessories with positive attachment to building and with weathertight mounting. Coordinate installation with flashings and other components.

3.4 ERECTION TOLERANCES

- A. Installation Tolerances: align solid phenolic siding planks within installed tolerance of 2 mm per m (0.08 inch per 3.3 feet) between fixing points, non-accumulative, on level, plumb, and location lines as indicated.

3.5 FIELD QUALITY CONTROL

- A. Engage fabricator of products supplied under this Section to conduct a review of procedures including handling, installation, application, protection, and cleaning of products and provide written reports to Architect. Provide field services, which include product use recommendations and periodic site visits to ensure that products are installed according to the manufacturer's instructions.
1. Schedule site visits to review Work at the following stages:
 - a. After delivery and storage of products, and when preparatory Work on which Work of this Section depends is complete, but before installation begins.
 - b. Twice during progress of Work at 25% and 60% complete.
 - c. Upon completion of Work, after cleaning is carried out.
 2. Obtain reports promptly after field reviews are completed and submit to Architect.
- B. Inspection and Testing Agency: Owner may engage a qualified independent testing agency to perform field tests and inspections.
1. Water-Spray Testing: After installation, test sample area as directed on-site by Architect for water penetration in accordance with AAMA 501.2.
 2. Where tests and inspections reveal defective work, provide corrective measures promptly.
 3. Additional tests and inspections, if required, will be performed at Contractor's expense to determine compliance of replaced or additional work with specified requirements.

3.6 CLEANING AND PROTECTION

- A. Remove temporary protective covers and strippable films before installing solid phenolic plank siding. Where films are provided on both sides of siding planks, ensure both films are removed at the same time to avoid siding warpage.
- B. Clean completed surfaces of solid phenolic plank siding according to manufacturer's instructions.
- C. Following installation of solid phenolic plank siding, clean obstructions, dirt, and sealants from weep holes and drainage channels.
- D. Replace broken or damaged solid phenolic plank siding that cannot be repaired successfully using finish touchup or equivalent minor repair operations.

END OF SECTION