SECTION 06 4216
WOOD PANELING

(Lineawood® Architectural Panels – Real Oak Veneer Wall and Ceiling Systems)

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Factory-fabricated Lineawood® real oak veneer architectural panels for interior walls and ceilings and for protected exterior soffits, including panels, acoustic fabric and backing where indicated, attachment components, trims, accessories, and related installation materials.
   1. [Slatted Panels: real oak veneer slats on an MDF base, for dry interior walls and ceilings.]
   2. [Acoustic Panels: slatted panels with precision-milled rear openings and acoustic fabric on both sides of the base.]
   3. [Wet-Room Panels: moisture-resistant construction for bathroom ceilings and humid interiors.]
   4. [Outdoor Panels: real oak veneer over edge-glued pine, preservative-treated, for covered exterior ceilings, terraces, and canopies.]
   5. [Flat Panels: smooth real oak veneer companion panels for dry interior walls and ceilings.]

B. Products Not Furnished or Installed Under This Section:
   1. Wood blocking, furring, and structural support for panel attachment.
   2. Gypsum board substrates, substrate preparation, and priming.
   3. [Mineral wool and cavity insulation required to achieve the specified acoustic performance, where specified in another Section.]
   4. Field finishing of adjacent construction.

1.2 RELATED SECTIONS

A. Section 06 10 00 - Rough Carpentry: Wood blocking and furring.
B. Section 09 21 16 - Gypsum Board Assemblies: Substrates behind architectural panels.
C. Section 09 91 00 - Painting: Field finishing of adjacent construction.
D. Section [_____] - Acoustic Insulation.
E. Division 26 - Electrical: Coordination of devices, lighting, and penetrations.
F. Section 09 7710 - Framed Decorative Panel Systems (Panawall®).

1.3 REFERENCES

A. International Organization for Standardization (ISO):
   1. ISO 354:2003 - Acoustics: Measurement of Sound Absorption in a Reverberation Room.
   2. EN ISO 11654:1997 - Acoustics: Sound Absorbers for Use in Buildings, Rating of Sound Absorption.
   3. ISO 16000 series - Indoor Air, as documented for the supplied assembly.

B. ASTM International (ASTM):
   1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
   2. [ASTM C423 and ASTM E795 - Sound absorption and mounting, where NRC data is required by the Project.]

C. American National Standards Institute (ANSI):
   1. ANSI A208.2 - Medium Density Fiberboard (MDF) for Interior Applications.

D. National Electrical Manufacturers Association (NEMA):
   1. NEMA LD 3 - High-Pressure Decorative Laminates.

E. Finnish Emission Classification of Building Materials, Class M1.

F. Forest Stewardship Council (FSC) chain-of-custody certification.

G. International Building Code (IBC), Chapter 8 - Interior Finishes.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Conference: Conduct a conference at the Project site before installation. Review substrates, blocking and furring, environmental conditions, layout, cavity depth and insulation, penetrations, terminations, lighting coordination, fasteners, and protection.

B. Coordination: Coordinate panel module, joint locations, access panels, electrical devices, mechanical grilles, sprinklers, and other penetrations before fabrication.

1.5 SUBMITTALS

A. Product Data: Submit manufacturer's literature describing panel construction, dimensions, slat configuration, finish, acoustic openings, fabric backing, accessories, installation, cleaning, and environmental limitations for each product family specified.

B. Shop Drawings: Submit plans, elevations, and reflected ceiling plans showing panel orientation, module, joint layout, attachment, perimeter conditions, inside and outside corners, penetrations, transitions, cavity depth, acoustic insulation, and mounting configuration.

C. Samples:

1. Finish Samples: Minimum 8 inches by 10 inches (203 mm by 254 mm), showing the specified real oak veneer finish, slat profile, and black reveal condition.
2. Profile Sample: Full-width panel section, minimum 12 inches (305 mm) long, showing slats, spacing, machined base, acoustic fabric, edge, and attachment condition.

D. Certificates and Test Reports:

1. Acoustic test report SY20-18 for the specified acoustic assembly.
2. Emissions documentation for Finnish Emission Classification M1.
3. FSC chain-of-custody documentation, where required by the Project.
4. Surface burning characteristics documentation in accordance with ASTM E84 for the project-specific assembly.

E. Closeout Submittals: Submit cleaning and maintenance instructions, warranty documentation, and a record of the approved finish and product codes.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer regularly engaged in the production of architectural wood panel systems of similar type and complexity.

B. Installer Qualifications: Experienced installer approved by the manufacturer and having completed not fewer than three projects of comparable scope.

C. Surface Burning Characteristics: Provide panels complying with the interior finish requirements of IBC Chapter 8 for the occupancy and location indicated, when tested in accordance with ASTM E84.

1. Required Rating: [Class A.] [Class B.] [Class C.] [As required by the authority having jurisdiction.]

D. Mockup: Construct a minimum 8-foot-wide by 8-foot-high (2.4 m by 2.4 m) wall mockup, or an equivalent ceiling mockup, including one corner, one termination, one penetration, the specified acoustic backing, cavity depth, and attachment method. The approved mockup establishes the minimum standard and may remain as part of the Work if undisturbed.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in unopened manufacturer packaging, identified with product, finish, lot, and Project information.

B. Store panels flat, dry, and fully supported, protected from moisture, sunlight, dirt, and damage. Do not store directly on concrete.

C. Handle panels to prevent chipping, scratching, and bowing, and to prevent damage to veneer faces, acoustic openings, and acoustic fabric.

D. Immediately report any damaged or missing materials to the shipper and to AAPG. Do not commence installation if any components are missing or damaged.

1.8 PROJECT CONDITIONS

A. Environmental Conditions: Do not install until the building is enclosed, wet work is complete and dry, and permanent HVAC maintains service conditions.

B. Acclimatization: Condition materials in the installation area for not less than 48 hours, or longer if required by the manufacturer.

C. Field Measurements: Verify dimensions before fabrication where the Work is dependent on field conditions.

D. Environmental Limitations: Each product family is engineered for a defined environment. Do not substitute one family for another across differing exposure conditions.

1. Slatted, Acoustic, and Flat Panels: Dry interior walls and ceilings only.
2. Wet-Room Panels: Humid interiors and bathroom ceilings without direct water exposure. Not for use in showers or saunas.
3. Outdoor Panels: Covered and protected exterior locations only. Not for exposure to direct rain or snow.

1.9 WARRANTY

A. Manufacturer’s Warranty: Provide the manufacturer’s standard written warranty covering defects in materials and manufacture for [one (1)] year from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Basis-of-Design Manufacturer: American Architectural Products Group (AAPG), 248 James Street, Venice, FL 34285. Telephone: +1-844-307-9571. Email: info@aapgco.com. Website: www.aapgco.com.

B. Specified Product: Lineawood® Architectural Panels.

C. Distributor: Koroseal Interior Products, 1111 Medina Road, Medina, OH 44256. Telephone: 855-753-5474. Email: info@koroseal.com.

2.2 SUBSTITUTIONS

A. Substitutions: Not permitted. Requests for substitutions, comparable products, alternates, or proposed equals will not be considered.

B. Division 01 substitution procedures do not apply to this Section. Product naming is proprietary and establishes the only acceptable manufacturer and product.

2.3 PANEL SYSTEMS – COMMON REQUIREMENTS

A. System Description: Factory-fabricated linear panel assemblies comprising real oak veneer surfaces on an engineered base, with precision slat spacing and coordinated attachment for continuous wall or ceiling installation.

B. Panel Coverage: Approximately 7.0 square feet (0.65 m²) per panel.

C. Jointing: Precision tongue-and-groove joints on all sides. Flat Panels: long-side tongue-and-groove.

D. Slat Profile: Exposed slat edges gently rounded and planed at approximately 45 degrees to create a three-dimensional linear appearance and assist sound diffusion.

E. Slat Configuration: [Standard: 1.42 inch (36 mm) slat width.] [Wide: 2.56 inch (65 mm) slat width.] [Mixed width: a combination of 1.42 inch (36 mm) and 2.56 inch (65 mm) slats.]

1. Slat Spacing: Approximately 0.31 inch (8 mm) reveal between slats.

F. Decorative Surface: Real oak veneer permanently bonded to exposed slat faces and base as required for a complete finished appearance.

G. Finish Selection: [Oak] [White Oak] [Mocha] [Black].

H. Adhesive and Coating: Manufacturer's standard water-soluble adhesive compatible with MDF, veneer, and acoustic fabric. Finish: UV-cured varnish for Oak and White Oak; water-based lacquer for Mocha and Black.

I. Emissions: Finnish Emission Classification M1 certified, subject to current manufacturer documentation.

J. Certified Wood: FSC-certified wood, where required by the Project.

K. Panel Families and Nominal Dimensions:

Panel Family	Nominal Size	Weight	Application
Slatted	118 x 8.5 x 0.79 in. (3000 x 217 x 19 mm)	14.33 lb (6.5 kg)	Dry interior
Acoustic	118 x 8.5 x 0.75 in. (3000 x 217 x 19 mm)	14.33 lb (6.5 kg)	Dry interior
Wet-Room	118 x 8.5 x 0.5 in. (3000 x 217 x 13 mm)	14.33 lb (6.5 kg)	Humid interior
Outdoor	116 x 8.5 x 0.79 in. (2950 x 217 x 19 mm)	12.13 lb (5.5 kg)	Covered exterior
Flat	118 x 8.5 x 0.39 in. (3000 x 217 x 10 mm)	12.13 lb (5.5 kg)	Dry interior

2.4 SLATTED PANELS – DRY INTERIOR

A. Construction: Real oak veneer slats on a high-quality MDF base.

B. Base Treatment: [Black base.] [Fully veneered base.]

C. Slat Width: [1.42 inch (36 mm).] [2.56 inch (65 mm).] [Mixed width.]

D. Sound Absorption: Class E, per EN ISO 11654.

E. Application: Dry interior walls and ceilings.

2.5 ACOUSTIC PANELS

A. Construction: Real oak veneer slats on a specially engineered MDF base, with precision-milled rear openings and premium black acoustic fabric factory-applied to both sides of the base.

B. Slat Configuration: Five slats, each approximately 1.42 inches (36 mm) wide, with approximately 0.31 inch (8 mm) black reveal between slats.

1. The Wide and Mixed-width configurations do not apply to the tested acoustic assembly unless specifically documented by the manufacturer.

C. Acoustic Openings: 40 precision-milled openings, each approximately 7.09 inches by 0.79 inch (180 mm by 20 mm), representing approximately 21 percent open area.

D. Acoustic Fabric: Premium black acoustically transparent fabric factory-applied to both sides of the machined base.

E. Sound Absorption Class: Class C, per EN ISO 11654, for the tested assemblies specified in Article 2.9.

F. Product Codes: [LP1-B-O-05 (Oak)] [LP1-B-W-05 (White Oak)] [LP1-B-M-05 (Mocha)] [LP1-B-B-05 (Black)].

G. Application: Dry interior walls and ceilings.

2.6 WET-ROOM PANELS

A. Construction: Solid phenolic (compact laminate) base faced with real oak veneer slats, factory-finished for use in humid interior environments.

1. Core: Cellulose fiber layers impregnated with thermosetting phenolic resin and fused under high heat and pressure, complying with NEMA LD 3, Grade CGS.

2. Product: [CompactWood® real wood veneer phenolic.] [Carbon Zero HPL® phenolic.] [Manufacturer's standard solid phenolic.]
3. Core Color: [Black.] [Brown.]
4. Adhesive and Coating: Moisture-resistant adhesive and breathable lacquer finish, compatible with the phenolic substrate and oak veneer.

B. Sound Absorption: [Class E, per EN ISO 11654.].

C. Application: Bathroom ceilings and humid interior spaces without direct water exposure.

2.7 OUTDOOR PANELS

A. Construction: Real oak veneer over an edge-glued pine base, treated with wood preservative.

B. Slat Width: [1.42 inch (36 mm).] [2.56 inch (65 mm).]

C. Ventilation Gap: Approximately 0.31 inch (8 mm) between slats.

D. Fasteners: Stainless steel screws furnished with the panels.

E. Application: Protected exterior ceilings, soffits, covered terraces, and canopies.

F. Limitations: Not for exposure to direct rain or snow. Provide continuous overhead protection and ventilation behind panels.

2.8 FLAT PANELS

A. Construction: Smooth real oak veneer on an MDF core, without slats or reveals.

B. Nominal Thickness: 0.39 inch (10 mm).

C. Jointing: Long-side tongue-and-groove.

D. Orientation: [Horizontal.] [Vertical.] [As indicated on the Drawings.]

E. Application: Dry interior walls and ceilings, coordinated with the slatted and acoustic families.

2.9 ACOUSTIC PERFORMANCE

A. Test Standards: Sound absorption coefficients measured in accordance with ISO 354:2003. Weighted sound absorption coefficient and absorption class determined in accordance with EN ISO 11654:1997.

B. Laboratory: Turku University of Applied Sciences, Laboratory of Acoustics; Report SY20-18, dated February 19, 2020.

C. Tested Specimen: Slatted acoustic panels, nominal 118 inches by 8.5 inches (3000 mm by 217 mm), with five slats, 40 rear openings, and a total test area of 113 square feet (10.5 m²).

D. Minimum Specified Performance: Provide a tested assembly achieving a weighted sound absorption coefficient of not less than αw 0.65 and Sound Absorption Class C, as represented by Report SY20-18.

E. Tested Mounting Configurations: Where indicated, provide assembly performance matching one of the tested configurations listed below. Acoustic performance shall not be extrapolated to untested mounting conditions.

Tested Configuration	Air Gap	Mineral Wool	Rating
Panel + mineral wool + air gap	6 in. (150 mm)	2 in. (50 mm)	αw 0.65; Class C
Panel + air gap	8 in. (200 mm)	None	αw 0.55; Class D
Panel + mineral wool	None	2 in. (50 mm)	αw 0.65; Class C
Panel + air gap	2 in. (50 mm)	None	αw 0.60; Class C

F. Frequency-Band Performance: For the αw 0.65 / Class C assembly incorporating 2-inch (50 mm) mineral wool, practical sound absorption coefficients (αp) are as follows:

Octave Band (Hz)	125	250	500	1000	2000	4000
αp	0.50	0.70	0.75	0.65	0.55	0.60

1. One-third-octave results for this assembly range from 0.29 at 100 Hz to a peak of 0.80 at 250 Hz.

G. Acoustic Limitation: Test results are valid only for the tested specimens and mounting configurations. Changes in cavity depth, insulation, substrate, perimeter sealing, penetrations, or installed area may change performance.

2.10 ACCESSORIES

A. Fasteners: Manufacturer-recommended corrosion-resistant screws, crown staples, clips, or concealed fasteners suitable for the substrate and application. Exposed fasteners, where permitted, shall be black and positioned within reveals without obstructing acoustic openings.

B. Furring and Blocking: Kiln-dried wood, plywood, or metal furring, sized and spaced to support panels and imposed loads and to provide the indicated acoustic cavity depth.

C. Trims: Manufacturer's standard or custom matching or contrasting perimeter, corner, reveal, and transition trims.

D. Acoustic Backing: Black acoustically transparent fabric and [2-inch (50 mm) mineral wool] [6-inch (150 mm) air gap] [8-inch (200 mm) air gap] [2-inch (50 mm) air gap], as required to achieve the specified tested assembly.

2.11 FABRICATION

A. Fabricate panels square, straight, and free of warp, delamination, chips, scratches, visible adhesive, blocked acoustic openings, and damaged fabric.

B. Sequence veneer pattern and tone for a visually balanced installation. Maintain consistent slat spacing and reveal alignment.

C. Machine acoustic openings, cutouts, and edge conditions accurately. Reinforce cutouts where required. Do not obstruct factory acoustic openings or damage acoustic fabric. Do not field cut factory-finished edges where exposed unless approved by the manufacturer.

D. Provide factory-finished components to the greatest extent practicable. Protect acoustic fabric and seal field-cut MDF edges where required by the manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, blocking, dimensions, tolerances, moisture conditions, penetrations, acoustic cavity depth, backing materials, and adjacent construction before installation.

B. Verify that substrates are plumb, level, true, dry, clean, and capable of supporting the installed system without deflection.

C. Verify that the cavity depth and insulation match the configuration required to achieve the specified acoustic performance.

D. Do not begin installation until unsatisfactory conditions have been corrected. Beginning installation constitutes acceptance of substrates.

3.2 PREPARATION

A. Establish control lines and verify layout to avoid narrow cuts at visible boundaries.

B. Install blocking and furring at the spacing required by the manufacturer, coordinated with panel joints, edges, fixtures, penetrations, and the specified acoustic cavity depth.

C. Coordinate concealed services before covering substrates.

3.3 INSTALLATION

A. Install panels in accordance with the approved shop drawings, the manufacturer's written instructions, and the mounting configuration required to achieve the specified acoustic performance.

B. Orientation: Install panels [vertically] [horizontally] [as indicated]. Maintain continuous, straight slat and reveal alignment across joints and adjacent surfaces.

C. Fastening: Secure through the tongue, reveal, clip, or other manufacturer-approved location. Conceal fasteners to the maximum extent. Do not damage veneer faces or acoustic fabric, and do not obstruct acoustic openings.

D. Walls: Install from an established datum, maintaining plumb joints and consistent reveals. Provide blocking at terminations and attachments.

E. Ceilings: Install to a structural or engineered support system. Maintain the specified acoustic cavity and insulation. Do not support panels from suspended gypsum board or ceiling grid unless specifically engineered and approved.

F. Outdoor Panels: Install with the specified ventilation gap maintained and with free air movement behind the panels. Use the stainless steel fasteners. Do not install in locations subject to direct rain or snow.

G. Openings: Cut accurately for outlets, devices, lights, sprinklers, grilles, access panels, and other penetrations. Avoid acoustic openings where practicable and protect acoustic fabric from tearing. Provide neat clearances and trims.

H. Perimeters and Corners: Provide uniform reveals or trims. Scribe neatly to adjacent construction. Do not install damaged or chipped pieces in exposed locations.

I. Expansion and Movement: Provide clearances and control joints required by the manufacturer and coordinate with building movement joints. Do not bridge structural expansion joints.

J. Protection During Installation: Protect veneer faces, acoustic openings, and acoustic fabric during installation and adjacent work.

3.4 FIELD QUALITY CONTROL

A. Inspect the completed installation for alignment, fastening, surface damage, acoustic backing continuity, cavity depth, joint uniformity, and conformance with the approved mockup.

B. Replace panels that are warped, delaminated, chipped, scratched, or stained, that are improperly aligned, that have damaged acoustic fabric or blocked acoustic openings, or that are otherwise unacceptable.

3.5 CLEANING

A. Clean veneer surfaces with manufacturer-approved nonabrasive products. Remove adhesive, markings, and construction residue without damaging the finish or acoustic fabric.

B. Do not use abrasive pads, strong solvents, compressed air, or cleaners not approved by the manufacturer.

3.6 PROTECTION

A. Protect the completed installation from impact, moisture, dust, staining, and damage by subsequent construction activities.

B. Repair or replace damaged work before Substantial Completion.

END OF SECTION 06 4216