

SECTION 09 84 00

ACOUSTICAL ROOM COMPONENTS



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PART 1 GENERAL

[FSC-C115051]

1.01 SUMMARY

- A. Section Includes: Curved acoustical wood [**reflector**] [**and**] [**diffuser**] panels.

1.02 ADMINISTRATIVE REQUIREMENTS

- A. To extent practical, schedule installation of acoustical wood panels after work above ceiling is complete.
- B. Preinstallation Meeting: Include installers of suspension system and acoustical wood panels. Comply with requirements in [**Section 01 31 00 "Project Management and Coordination."**] <Insert Section number and title.>

1.03 ACTION SUBMITTALS

- A. Product Data: Submit manufacturer's product data sheets and installation instructions.
- B. Finish Selection Samples: Provide printed color charts or finished chips.
- C. Verification Samples: Provide [**two**] <**other number**>12- by 12-inch samples of each acoustical wood panel specified, showing two adjacent edges and a corner.

Note to Specifier: Retain below if LEED credit compliance is required; adjust list to reflect credits sought. Credits are based on LEED 2009 NC, Schools, and CS rating systems.

- D. LEED Submittals:

Note to Specifier: Bio-blend core has high recycled content.

1. LEED Credit MR 4, Recycled Content: Product Data indicating percentage by weight of post-consumer and post-industrial recycled content for products having recycled content. Include a statement indicating costs for each product having recycled content.

Note to Specifier: Bamboo veneer contributes to this credit.

2. LEED Credit MR 6, Rapidly Renewable Materials: Product Data indicating percentage by weight of rapidly renewable content for products having rapidly renewable content. Include a statement indicating costs for each product having rapidly renewable content.

Note to Specifier: Reflectors and diffusers contribute to credit below when specified with FSC® -certified cores and veneers.

3. LEED Credit MR 7: Chain-of-custody certificates certifying that wood products comply with forest certification requirements. Include evidence that manufacturer is certified for chain of custody by an FSC® -accredited certification body. Include statement of costs for wood ceiling tiles.

Note to Specifier: Reflectors and diffusers contribute to credit below when specified with recycled-fiber core.

4. LEED Credit EQ 4.4: For each composite-wood product used in ceiling tile fabrication, provide documentation indicating that the bonding agent contains no urea formaldehyde. For each adhesive used in ceiling tile fabrication, documentation indicating that the adhesive contains no urea formaldehyde.

1.04 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans, drawn to scale, showing acoustical wood panels and the following items:
 1. Suspended ceiling system attachment locations to building structure.
 2. Lighting fixtures.
 3. Sprinklers.
 4. HVAC vents and diffusers.
 5. Audio-visual equipment.
 6. <Insert item>.

1.05 QUALITY ASSURANCE

Note to Specifier: Retain the following paragraph if FSC® Certified wood products are required.

- A. Manufacturer Qualifications: FSC® Chain of Custody Certification.
- B. Testing Agency Qualifications: NVLAP accredited for testing specified.

Note to Specifier: Mockups are generally not required. If retained, coordinate with Related Sections.

- C. Mockups: Install [one] <Insert number> [reflector] [and] [diffuser] panel(s). **[Approved Mockups may remain in place in completed Work if undisturbed at Substantial Completion.]**

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical wood panels after building is enclosed, concrete, plaster, and drywall work is complete, and HVAC system is operating and maintaining temperature and humidity at occupancy levels.
- B. Store acoustical wood panels in conditioned space. Keep panels dry.

PART 2 PRODUCTS

2.01 PRODUCT

- A. Acceptable Product: Eclipse Acoustical Wood; Madrid Inc.

[Project No.]
[Date]

[Project Name]
[Project Location]

1. Address: 7800 Industry Ave., Pico Riviera, CA 90660
2. Phone: (562) 404-9941.
3. Email: info@madridinc.com.
4. Web: www.madridinc.com.

B. Substitutions will not be considered.

Note to Specifier: Select substitution limitation paragraph above or below.

C. Substitutions will be considered [**according to Instructions to Bidders**] [**as specified in Division 01**].

2.02 PERFORMANCE CRITERIA

- A. Surface-Burning Characteristics: Comply with ASTM E 84.
1. Flame-Spread Index: 25 or less.
 2. Smoke-Developed Index: 65 or less.

Note to Specifier: Acoustical absorption requires acoustic backer and depends on size of perforations.

B. Acoustical Absorption: ASTM C 423, per ASTM E 795, mounting type E-400.

Note to Specifier: Retain paragraph below if all panels are required to have the same performance; otherwise, delete paragraph and specify NRC for each panel type in schedule at end of Part 3.

1. NRC: Not less than **[0.35]** **[0.50]** <Insert value>.

2.03 MATERIALS

Note to Specifier: Retain option in paragraph below if required or if particle board with recycled fibers is required

- A. Core: **[Provide products made with binder containing no urea formaldehyde.]**
1. Particle Board: ANSI A208.1, Grade M-2[, **fabricated with recycled fibers**].

Note to Specifier: Retain paragraph and subparagraphs below if retaining option in paragraph above.

- a. Recycled Fiber Products: 100 percent pre-consumer recycled content and complying with Environmentally Preferable Product Specification CPA 2-06.
 - 1). Product: Bio-Blend; Madrid, Inc.
2. Medium Density Fiberboard: ANSI A208.2, Grade 130[, **fire-retardant-treated**].

Note to Specifier: Retain two paragraphs below if wood rib and metal bracket mounting method is required.

- B. Solid Wood: Steamed beech.
- C. Hot-Rolled Steel Sheet: ASTM A 1011, galvanized per ASTM A 653, G90 coating, Grade 33.

Note to Specifier: Retain two paragraphs below if clevis assembly mounting method is required.

- D. Hardened Stainless Steel Bars and Shapes: ASTM A 564 or ASTM A 693, Type 630, heat-treated.
- E. Standard Stainless Steel Bars and Shapes: ASTM A 276, Type 316L.

2.04 ACOUSTICAL WOOD PANELS

Note to Specifier: Certified materials are not standard. Retain paragraph below if FSC® -certified are required.

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- A. Certified Materials: Provide wood components certified as “FSC® 100%” or “FSC® Mixed” according to FSC® STD-01-001.
- B. Molded Veneer-Faced Panels: Made with no added urea formaldehyde.
 - 1. Edges: Wood veneer matching of veneer face.

Note to Specifier: Retain paragraph below if acoustical absorption is required.

- C. Perforations: Provide pattern indicated.

2.05 SUSPENSION SYSTEM

Note to Specifier: Retain paragraph below and select appropriate option if the suspension system is specified in another section. If the suspension system is not specified in another section, delete paragraph below and copy suspension system requirements from ceiling guide specification.

- A. Provide [wire hanger] [and] [hanger rod] suspension system(s) specified in [Section 09 22 26 “Suspension Systems.”] [Section 09 51 13 “Acoustical Panel Ceilings.”] [Section <Insert section number> “<Insert section title>.”]

Note to Specifier: Retain metal bracket, clevis assembly, or both as required for panels indicated in schedule in Part 3.

- B. Metal Bracket: Manufacturer’s standard flanged U-shaped bracket fabricated of steel sheet with predrilled holes for attachment to support ribs and to suspension system.
- C. Clevis Assembly: Manufacturer’s standard stainless steel assembly consisting of adjustable components for attaching acoustical wood panels to suspension system.
 - 1. Clevis Stud: Standard stainless steel threaded stud with exposed face plate and flat tab with hole for fitting into clevis fork.
 - a. Face Plate Finish: No. 8, mirror-like reflective.
 - 2. Clevis Fork: Hardened stainless steel rod with forked end with holes at one end for bolt attachment to clevis stud and outside threaded rod at other end for attachment to suspension system.

Note to Specifier: Retain one or both paragraphs below for type(s) of suspension system used.

- a. Provide turnbuckle at threaded ends for hanger rod suspension systems.
- b. Provide turnbuckle and eyebolt at thread ends for wire hanger suspension systems.

2.06 FABRICATION

- A. Acoustical Wood Panels: Molded-veneer panels formed to shape(s) indicated.

Note to Specifier: Retain paragraph and subparagraph below if some panels are perforated.

- 1. Perforate panels before finishing.
 - a. Attach acoustical backing to back of panels with adhesive.

Note to Specifier: Retain paragraph below if some panels are installed using the clevis assembly mounting method.

- 2. Predrill holes for clevis studs prior to finishing.

Note to Specifier: Retain paragraph below if some panels are installed using the metal bracket mounting method.

- B. Support Ribs: Solid wood attached with wood screws and adhesive to back of panel at spacing required for suspension without panel deflection.

1. Attach mounting brackets to support ribs using manufacturer's wood screws. Provide one bracket for each **[wire hanger]** **[and]** **[hanger rod]**.

C. Complete fabrication and finishing before shipment to Project site.

2.07 FINISHING

- A. Transparent Finish: Waterborne, UV-curable acrylated epoxy, polyester, or urethane.
- B. Stain: **[None required]** **[As indicated in Acoustical Wood Panel Schedule in Part 3]** **[Match Architect's sample]** <Insert stain color>.
- C. Sheen: **[Flat]** **[Satin]** **[Semi-gloss]** **[Gloss]**.
- D. Apply finish to all exposed surfaces and back of panel.

2.08 ACCESSORIES

Note to Specifier: Retain paragraph below if acoustical absorption is required.

- A. Acoustical Backing: Manufacturer's standard non-woven fabric.

Note to Specifier: Retain one or both options in paragraph below, as required, for clevis assembly suspension method.

- B. Fasteners: Manufacturer's standard Type 304 or 316L stainless steel screws, **[turnbuckles,]** **[eyebolts,]** nuts, retaining nuts, and washers.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine areas, including structural framing, for compliance with requirements.

3.02 PREPARATION

- A. Condition acoustical wood panels by placing panels into spaces where they will be installed at least 72 hours prior to installation.

3.03 SUSPENSION SYSTEM INSTALLATION

Note to Specifier: Retain paragraph below and select appropriate option if the suspension system installation is specified in another section. If the suspension system installation is not specified in another section, delete paragraph below and copy suspension system installation requirements from ceiling guide specification.

- A. Install **[wire hanger]** **[and]** **[hanger rod]** suspension system(s) as specified in **[Section 09 22 26 "Suspension Systems.]"** **[Section 09 51 13 "Acoustical Panel Ceilings.]"** **[Section <Insert section number> "<Insert section title>."]**

3.04 ACOUSTICAL WOOD PANEL INSTALLATION

Note to Specifier: Retain paragraph below if the clevis assembly suspension method is used.

[Project No.]
[Date]

[Project Name]
[Project Location]

- A. Clevis Assembly: Attach clevis studs to panels in predrilled holes and secure with nut and washer.
 1. Attach clevis fork to clevis stud with fastener using nickel anti-seize compound on nut.
- B. Installation for Wire Hanger Suspension Systems: Secure wire hangers to **[mounting brackets]** **[and]** **[eyebolt]** with a minimum of three tight turns.
- C. Installation for Hanger Rod Suspension Systems:
 1. Secure hanger rods to mounting brackets with a retaining nut and washer on each side of mounting bracket.
 2. Secure hanger rods to clevis assembly with turnbuckles.

3.05 ACOUSTICAL WOOD PANEL SCHEDULE

Note to Specifier: Copy paragraph below for each type of panel used. Insert designation that is used to identify panel type on the Drawings.

- A. Acoustical Wood Panel (Type-<Insert Designation>):
 1. Type: **[Reflector]** **[Diffuser]**.
 2. Shape: **[Curved, concave]** **[Curved, convex]** **[Sinusoidal]** **[As indicated on Drawings]**.
 - a. Radius: <Insert dimension> measured to face of panel.

Note to Specifier: Veneers below are standard. Other veneers are available. See other available veneers at www.madridinc.com.

3. Face Veneer: **[Flat cut cherry]** **[Flat cut maple]** **[Red oak]** **[Natural ash]** **[Natural white birch]** **[Beech]** **[Natural bamboo]** **[Carmel bamboo]** <Insert veneer species>.
 - a. Stain: <Insert stain color>.
4. Face Dimensions: **[As indicated on Drawings]** <Insert dimensions>.
5. Core: **[Particle board]** **[Medium density fiberboard]**.

Note to Specifier: Thickness of panel core depends on size of panel and spacing of suspension system.

- a. Thickness: **[3/4 inch]** **[1/2 inch]**.

Note to Specifier: Retain paragraph below if panels are required to have different NRC values. If all panels have the same NRC value, delete paragraph below and use NRC paragraph in Part 2 "Performance Criteria" article.

6. NRC: Not less than **[0.35]** **[0.50]** <Insert value>.
7. Perforations: **[Manufacturer's standard pattern and hole size]** **[As indicated on Drawings]** <Insert pattern and hole diameter>.
8. Suspension System: **[Wire hanger]** **[Hanger rod]**.
9. Mounting Method: **[Metal bracket]** **[Clevis assembly]**.

END OF SECTION

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