

SECTION 09 54 36
SUSPENDED DECORATIVE WOOD CEILINGS

PART 1 - GENERAL

A. Section Includes: Wood suspended ceilings and suspension systems for ceilings to match existing ceiling material, finish and color.

1. Comply with additional requirements in Division 09 Section "Acoustical Panel Ceilings"

B. Related Sections:

1. Division 09 Section "Acoustical Panel Ceilings" for ceilings consisting of mineral-base and glass-fiber-base acoustical panels and exposed suspension systems.
2. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete at ceilings.

1.2 REFERENCED STANDARDS

A. General: Refer to Division 09 Section "Acoustical Panel Ceilings."

B. Forest Stewardship Council:

1. FSC STD-01-001-2004 FSC Principles and Criteria for Forest Stewardship (available in PDF at www.fsc.org)
2. FSC STD-40-004-2008 FSC Standard for Chain of Custody Certification (available in PDF at www.fsc.org)

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

- B. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below, to match existing ceiling material, finish and color:
 - 1. Minimum 8-3/8 inch x 11-1/2 inch samples of specified panel; 8 inch long samples of exposed wall molding and suspension system.

1.4 INFORMATIONAL SUBMITTALS

- A. Reports:
 - 1. Field quality-control reports.
 - 2. Evaluation Reports: For suspended decorative ceiling and anchor type.
- B. Project Close-out Submittals: Maintenance Data: For finishes to include in maintenance manuals.

1.5 LEED SUBMITTALS

- A. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
- B. Certificates for Credit MR 7: Chain-of-custody certificates indicating that wood products comply with forest certification requirements. Include documentation that manufacturer is certified for chain of custody by an FSC-accredited certification body. Include statement indicating cost for each certified wood product.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain each color, finish, and type of suspended decorative wood ceiling from single source with resources to provide products of consistent quality in appearance, physical properties, and performance.

1. Provide ceiling panel units and grid components by a single manufacturer.
 - B. Surface-Burning Characteristics: As determined by testing identical products per ASTM E 84 by a qualified testing agency. Identify products with appropriate marking of applicable testing agency.
 1. Flame-Spread Index: 25 or less.
 2. Smoke-Developed Index: 450 or less.
 - C. Seismic Standard: Provide suspended decorative ceilings designed and installed to withstand the effects of earthquake motions according to the following:
 1. Comply with CISCA's Guidelines for Systems Requiring Seismic Restraint: Comply with CISCA's "Guidelines for Seismic Restraint of Direct-Hung Suspended Ceiling Assemblies - Seismic Zones 3 & 4."
 2. CBC and UBC Standard 25-2, "Metal Suspension Systems for Acoustical Tile and for Lay-in Panel Ceilings."
 - D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
 - E. Preinstallation Conference: Conduct conference at Project site.
 - F. Woodworking Standards: Manufacturer must comply with specified provisions of Architectural Woodworking Institute quality standards, latest edition.
- 1.7 DELIVERY, STORAGE, AND HANDLING
- A. General: Deliver suspended decorative ceiling components to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against

damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

1. Handle suspended decorative ceilings and accessories carefully to avoid damaging units and finishes in any way.
2. Store ceiling components in a dry interior location in their cartons prior to installation to avoid damage. Store cartons in a flat, horizontal position. The protectors between the panels should not be removed until installation.
3. Do not store in unconditioned spaces with humidity greater than 55 percent or lower than 25 percent relative humidity and temperatures lower than 50 degrees F or greater than 86 degrees F. Panels must not be exposed to extreme temperatures, for example, close to a heating source or near a window with direct sunlight.
4. Handle ceiling units carefully to avoid chipped edges or damage to units in any way.

1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install suspended decorative ceilings until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
 1. Wood veneer ceiling materials should be permitted to reach room temperature and have a stabilized moisture content for a minimum of 72 hours before installation. (Remove plastic wrap to allow panels to climatize).
 2. The wood veneer panels should not be installed in spaces where the temperature or humidity conditions vary greatly from the temperatures and conditions that will be normal in the occupied space.
 3. As interior finish products, the wood veneer panels are designed for installation in temperature conditions between 50 degrees F and 86 degrees F, in spaces where the building is enclosed and

HVAC systems are functioning and will be in continuous operation.
Relative humidity should not fall below 25 percent or exceed 55
percent.

1.9 COORDINATION

- A. Coordinate layout and installation of suspended decorative ceilings with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

1.10 WARRANTY

- A. Wood Veneer Panel:
 - 1. Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to:
 - a. Defects in materials or factory workmanship.
 - 2. Warranty Period:
 - a. Wood Veneer Panel System: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SUSPENDED DECORATIVE WOOD CEILINGS

- A. Certified Wood: Provide paneling produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
- B. Wood Tiles
 - 1. Type: Access (hook-on) system, perforated wood veneer ceiling panels.
 - 2. Plenum Access: Full downward access.

3. Surface Texture: Smooth.
 4. Substrate: Duraflake FR, Class A rated fire-retardant particleboard.
 5. Size: As indicated on the Drawings.
 6. Veneer:
 - a. Grade: AA.
 - b. Veneer Species: Maple, white.
 - c. Cut, match, and stain: Match existing ceiling material, finish and color
 7. Perforations: Match existing ceiling material, finish and color.
 8. Flame Spread: Class A per IBC
 9. Edge Detail: Square cut edge for installation on WoodWorks Flat Hook-on suspension system.
 10. Joint Gaskets: Joints are gasketed with a 6mm gasket.
- C. Accessories: Cutouts and apertures as required.
1. Edge Banding for field-modified panels: Pre-finished pressure sensitive adhesive banding is available 15/16 inch wide and in 50 foot lengths in species matching panels.
 2. Refer to the Reflected Ceiling Plans for sizes and type of installation indicated.
- D. Wood Characteristics: Provide wood components selected for surface flatness, smoothness, and freedom from surface blemishes where exposed to view in finished unit. Do not use materials whose exposed surfaces exhibit defects, variations in flatness, stains, discolorations, or other imperfections.
- E. Ceiling Fabrication: Components formed from wood indicated. Manufacturer's standard units of size, shape, and profile indicated, finished to comply with requirements indicated.
- F. Cover Profiles and Trim: Provide manufacturer's standard cover profiles and trim for exposed members, and as indicated or required, for edges of ceilings, at changes in ceiling height, and for other

conditions, of same material and finish as suspended decorative ceilings.

2.2 SUSPENSION SYSTEM

- A. Single Source: Provide Suspension system by the same manufacturer of wood panels to match existing ceiling material, finish and color.
 - 1. Components: H-bar sections shall be commercial-quality extruded aluminum. Exposed surfaces chemically cleansed. H-bars shall be suspended from BPM300.100 U-profile carrying channel.
 - a. BPM311.156 Hanger for H-profile with BPM300.120 plug-in clip provided for attachment to U-profile carrying channel.
 - b. BPM311.017 Connector for H-profile used to form continuous Hook-on H-bar members.
 - c. BPM300.119 Connector for U-profile used to form continuous U-profile carrying channel.
 - d. 10" Rail Hook mounted on panel.
- B. Finish: Steel parts shall be chemically cleansed hot dipped galvanized steel.
 - 1. Wall Molding Color: To be selected from manufacturer's standard offering.
- C. Metal Suspension System Standard: Provide ceiling manufacturer's standard metal suspension systems of types and finishes indicated that comply with applicable ASTM C 635 requirements. Provide systems complete with runners or beams, splice sections, connector clips, alignment clips, leveling clips, hangers, molding, trim, web covers, load-resisting struts, fixture filler pans, clips and adapters, and other suspension components required to support ceiling units and other ceiling-supported construction.
- D. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, Direct Hung, unless otherwise indicated, but not less than 12 gauge diameter.

1. Cast-in-Place and Postinstalled Anchors in Concrete: Anchors of type and material indicated below, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing per ASTM E 488 or ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.
 - a. Type: Postinstalled expansion anchors.
 - b. Corrosion Protection: Carbon-steel components zinc plated to comply with ASTM B 633, Class Fe/Zn 5 (0.005 mm) for Class SC service condition (mild).
 2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.
- E. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 2. Size: Select wire diameter so its stress at 3 times hanger design load indicated in ASTM C 635, Table 1, Direct Hung will be less than yield stress of wire, but provide not less than 0.135-inch- diameter wire.
- F. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.
- G. Angle Hangers: Angles with legs not less than 7/8 inch wide; formed with 0.04-inch- thick, galvanized-steel sheet complying with ASTM A 653/A 653M, G90 coating designation; with bolted connections and 5/16-inch- diameter bolts.

1. Basis of Design Product: Exposed Hangers Solutions by USG.

H. Seismic Struts: Manufacturer's standard compression struts designed to accommodate seismic forces.

I. Exposed Metal Edge Moldings, Covers, Trim, and Fixture Filler Panels: Provide exposed members as indicated or required to conceal edges of and penetrations through ceiling, to conceal edges of beams, to cover runner webs, for fixture trim and adapters, for fasciae at changes in ceiling height, and for other conditions; of metal and finish matching suspended decorative ceilings unless otherwise indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, including structural framing and substrates to which suspended decorative ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of suspended decorative ceilings.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Measure each ceiling area and establish layout of suspended decorative ceilings to balance border widths at opposite edges of each space. Comply with layout shown on reflected ceiling plans.

3.3 INSTALLATION

- A. Install suspended decorative ceilings to comply with UBC Standard 25-2 and seismic requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
1. Suspend ceiling hangers from building's structural members.
 2. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system.
 3. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 4. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
 5. Secure hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for structure to which hangers are attached and for type of hanger involved.
 6. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, powder-actuated fasteners, or drilled-in anchors that extend through forms into concrete. Do not attach hangers to steel deck tabs.
 7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 8. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated.
- B. Bracing Wires: Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without

attaching to permanent metal forms, steel deck, or steel deck tabs.
Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.

C. Edge Moldings: Install edge moldings and trim of type indicated at perimeter of each suspended decorative ceiling and where necessary to conceal edges of ceilings.

1. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, level with ceiling system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.
2. Do not use exposed fasteners, including pop rivets, on moldings and trim.

D. Moldings and Trim: Install suspended decorative ceilings in coordination with suspension system and exposed moldings and trim.

1. Align joints in adjacent courses to form uniform, straight joints parallel to room axis in both directions unless otherwise indicated.
2. Fit adjoining units to form flush, tight joints.
3. Where ceiling edges are visible, install cover profiles unless other trim is indicated.

3.4 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Suspended ceiling system.
2. Hangers, anchors, and fasteners.

B. Tests and Inspections: Testing and inspecting of completed installations of acoustical panel ceiling hangers and anchors and fasteners shall take place in successive stages, in areas of extent and using methods as follows. Do not proceed with installations of acoustical panel ceiling hangers for the next area until test results

for previously completed installations of acoustical panel ceiling hangers show compliance with requirements.

1. Extent of Each Test Area: When installation of ceiling suspension systems on each floor has reached 20 percent completion but no panels have been installed.
 - a. Within each test area, testing agency will select 1 of every 10 power-actuated fasteners and postinstalled anchors used to attach hangers to concrete and will test them for 200 lbf of tension; it will also select 1 of every 2 postinstalled anchors used to attach bracing wires to concrete and will test them for 440 lbf of tension.
 - b. When testing discovers fasteners and anchors that do not comply with requirements, testing agency will test those anchors not previously tested until 20 pass consecutively and then will resume initial testing frequency.
2. Acoustical panel ceiling hangers and anchors and fasteners will be considered defective if they do not pass tests and inspections.
3. Prepare tests and inspection reports.

3.5 CLEANING

- A. Clean exposed surfaces of suspended decorative ceilings, including trim and edge moldings after removing strippable, temporary protective covering if any. Comply with manufacturer's written instructions for stripping of temporary protective covering, cleaning, and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage, including dented and deformed ceilings.

END OF SECTION 09 54 36