

SECTION 09511

ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
1. Acoustical ceiling tiles and panels.
 2. Suspension systems, grid systems and ceiling hangers.
 3. Acoustical sealant at edge moldings at acoustical ceilings.
- B. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
1. Section 00850 – NATIONAL ACCOUNTS for pricing.
 2. Section 09260 - GYPSUM BOARD ASSEMBLIES for gypsum board ceilings and soffits.
 3. Division 15 - FIRE PROTECTION for fire-suppression components located in ceilings.
 4. Division 15 - HEATING, VENTILATING AND AIR CONDITIONING for air handling and distribution components located in ceilings.
 5. Division 16 - ELECTRICAL for light fixture and alarm system components located in ceilings.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
1. Manufacturers' product data for sealants, including printed statement of VOC content and material safety data sheets.
- B. Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items. Show the following:
1. Ceiling suspension members.
 2. Method of attaching hangers to building structure. Furnish layouts for cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.
 3. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.

- C. Asbestos Certification: Manufacturer's written certification that acoustical ceiling products contain no asbestos (0.0000%). Product labels indicating that it is the user's responsibility to test the products for asbestos are unacceptable and sufficient cause for rejection of the product on site.
- D. Maintenance Data: For finishes to include in maintenance manuals.

1.3 QUALITY ASSURANCE

- A. Source Limitations:
 - 1. Acoustical Ceiling Panels: Obtain each type through one source from a single manufacturer.
 - 2. Suspension Systems: Obtain each type through one source from a single manufacturer.
- B. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:
 - 1. Fire-Resistance Characteristics: Where indicated, provide acoustical panel ceilings identical to those of assemblies tested for fire resistance per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - a. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another testing and inspecting agency.
 - b. Identify materials with appropriate markings of applicable testing and inspecting agency.
 - 2. Surface-Burning Characteristics: Provide acoustical panels complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84:
- C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension system components, and accessories 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.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

- C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, 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.

1.6 COORDINATION

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

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Panels: Full-size panels equal to two unopened boxes or each type.

PART 2 - PRODUCTS

2.1 ACOUSTICAL PANELS, GENERAL

- A. Products: Subject to compliance with specified requirements, provide one of the following products for each type indicated.
 - 1. Distributor: Chuck Fleming, BPB America, Inc.; 610.321.2571.
- B. ACT-1: General office use and as indicated.
 - 1. Manufacturer and Model Number:
 - a. BPB Celotex, Baroque Custom-Line BQCL-224 – "Safetone®" Class A.
 - 2. Panel Size: 24 inches by 48 inches by 3/4 inch.
 - 3. Panel Mounting: Revealed edge.
 - 4. Noise Reduction Coefficient (NRC): Not less than 0.55.
 - 5. Ceiling Attenuation Class (CAC): Not less than 35.
 - 6. Color: White.
 - 7. Grid Material: Painted steel.
 - 8. Grid Face Width: 15/16 inch.

- C. ACT-2: General office use and as indicated. (For UL Fire Resistance time-rated assemblies).
1. Manufacturer and Model Number:
 - a. BPB Celotex, Baroque Custom-Line PBQCL-224- "Protectone®"
 2. Panel Size: 24 inches by 48 inches by 3/4 inch.
 3. Panel Mounting: Revealed edge.
 4. Noise Reduction Coefficient (NRC): Not less than 0.55.
 5. Ceiling Attenuation Class (CAC): Not less than 35.
 6. Color: White.
 7. Grid Material: Painted steel.
 8. Grid Face Width: 15/16 inch.
- D. ACT-3: Toilet Rooms, Soiled Utility Room, Janitor Closet and as indicated.
1. Manufacturer and Model Number:
 - a. BPB Celotex, Aquarock 1180-CRF-1SV – "Safetone" Class A.
 2. Panel Size: 24 inches by 48 inches by 3/4 inch.
 3. Panel Mounting: Trim edge.
 4. Noise Reduction Coefficient (NRC): n/a.
 5. Ceiling Attenuation Class (CAC): 43.
 6. Color: White.
 7. Grid Material: Painted steel.
 8. Grid Face Width: 15/16 inch.

2.2 METAL SUSPENSION SYSTEMS

- A. Distributor: Chuck Fleming, BPB America, Inc.; 610.321.2571.
- B. Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.
1. Manufacturer and Model Number:
 - a. Celotex Brand Ceiling Suspension System "Classic Stab System".
 2. Structural Classification: Intermediate-duty system – ASTM C 635.
 3. Cross Tee End Condition:
 - a. Stainless Steel stab-in clip.
 - b. Hook-over end tab.
 4. Face Design: Double web construction.
 5. Cap Material:
 - a. Hot-dipped galvanized steel
 - b. Aluminum capped components (for humid environments).
 6. Color: White, prefinished.
 7. Grid Face Width: 15/16"

- C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.
 - 1. Anchors in Concrete: Anchors 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; zinc-plated for Class SC1 service.
 - 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.

- D. 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 three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106 diameter wire.

- E. Hold-Down Clips: At vestibules and areas subject to wind uplift, provide manufacturer's standard hold-down clips spaced 24 inches on all cross tees.

2.3 METAL EDGE MOLDINGS AND TRIM

- A. Roll-Formed Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.
 - 1. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
 - 2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
 - 3. For narrow-face suspension systems, provide suspension system and manufacturer's standard edge moldings that match width and configuration of exposed runners.

2.4 ACOUSTICAL SEALANT

- A. Acoustical Sealant for Concealed Joints: Manufacturer's standard nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant, with a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), recommended for sealing interior concealed joints to reduce airborne sound transmission.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel 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 acoustical panel ceilings.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

3.3 INSTALLATION

- A. General: Install acoustical panel ceilings to comply with ASTM C 636 per manufacturer's written instructions and Cisca's "Ceiling Systems Handbook."
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with 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.

4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 5. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
 6. Do not attach hangers to steel deck tabs.
 7. Space hangers not more than 48 o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
- C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.
 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- D. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- E. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
1. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.
 2. Install hold-down clips in areas indicated, in areas required by authorities having jurisdiction, and for fire-resistance ratings; space as recommended by panel manufacturer's written instructions, unless otherwise indicated.

3.4 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for 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.

END OF SECTION