

## SECTION 095113 - ACOUSTICAL PANEL CEILINGS

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Acoustical panels.

#### 1.2 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.

#### 1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product specified.
- B. Samples for Initial Selection: For components with factory-applied color finishes.
- C. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.
1. Acoustical Panel: Set of 6-inch-square Samples of each type, color, pattern, and texture.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: Indicate compliance of acoustical panel ceilings and components with requirements based on comprehensive testing of current products.
- B. Evaluation Reports: For each acoustical panel ceiling suspension system, from ICC-ES.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For finishes to include in maintenance manuals.

## 1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
  - 1. Acoustical Ceiling Units: Full-size units equal to 2 percent of amount installed.
  - 2. Suspension System Components: Quantity of each exposed component equal to 2 percent of amount installed.

## 1.8 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.

## 1.9 FIELD 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.

# PART 2 - PRODUCTS

## 2.1 SOURCE LIMITATIONS

- A. Obtain each type of acoustical ceiling panel and its supporting suspension system from single source from single manufacturer.

## 2.2 PERFORMANCE REQUIREMENTS

- A. Verify ceiling products comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- B. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Flame-Spread Index: Class A materials according to ASTM E1264.
  - 2. Smoke-Developed Index: 50 or less.

## 2.3 ACOUSTICAL PANELS, GENERAL

- A. Acoustical Panel Standard: Provide manufacturer's standard panels according to ASTM E1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.
- B. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 20 percent.
- C. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.

## 2.4 ACOUSTICAL PANELS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Armstrong Ceiling & Wall Systems.
  - 2. CertainTeed Corporation; Saint-Gobain North America.
  - 3. Rockfon (Rockwool International).
  - 4. USG Corporation.
- B. Classification: Provide panels complying with ASTM E1264 for type, form, and pattern as follows:
  - 1. Type and Form: Type III, mineral base with painted finish; Form 2, water felted.
- C. Color: White.
- D. Light Reflectance (LR): Not less than LR 0.85.
- E. Noise Reduction Coefficient (NRC): Not less than 0.55.
- F. Edge/Joint Detail: To match building standard.
- G. Thickness: To match building standard.
- H. Modular Size: 24 by 48 inches.

## 2.5 METAL SUSPENSION SYSTEM

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Armstrong Ceiling & Wall Solutions.
  - 2. CertainTeed Corporation; Saint-Gobain North America.
  - 3. Rockfon (Rockwool International).
  - 4. USG Corporation.

- B. Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C635/C635M and designated by type, structural classification, and finish indicated.
- C. Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, hot-dip galvanized, G30 coating designation, with prefinished 15/16-inch- wide metal caps on flanges.
  - 1. Face width: To match building standard.
  - 2. Structural Classification: Heavy-duty system.
  - 3. Face Design: Flat, flush.
  - 4. Cap Material: Steel cold-rolled sheet.
  - 5. Cap Finish: To match building standard.

## 2.6 ACCESSORIES

- A. Attachment Devices: Size for five times design load indicated in ASTM C635, Table 1, Direct Hung, unless otherwise indicated.
- B. Wire Hangers, Braces, and Ties: Provide wires as follows:
  - 1. Zinc-Coated, Carbon-Steel Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper.
  - 2. Size: Wire diameter sufficient for its stress at three times hanger design load (ASTM C635/C635M, Table 1, "Direct Hung") will be less than yield stress of wire, but not less than 0.106-inch-diameter wire.

## 2.7 METAL EDGE MOLDINGS AND TRIM

- A. Products: Subject to compliance with requirements, provide metal edge moldings and trim manufactured by metal suspension system manufacturer.
- B. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.
  - 1. Edge moldings shall fit acoustical panel edge details and suspension systems indicated and match width and configuration of exposed runners unless otherwise indicated.
    - a. Edge Molding: To match building standard.
  - 2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

## 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. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. 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 unless otherwise indicated, and comply with layout shown on reflected ceiling plans.
- B. Layout openings for penetrations centered on the penetrating items.

### 3.3 INSTALLATION

- A. Install acoustical panel ceilings according to ASTM C636/C636M and manufacturer's written instructions.
- 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.
  - 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; that are 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. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
  7. Do not attach hangers to steel deck tabs.
  8. Do not attach hangers to steel roof deck. Attach hangers to structural members.
  9. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
  10. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
- 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. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends. Miter corners accurately and connect securely.
  2. 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 precise fit.
1. Arrange directionally patterned acoustical panels as follows:
    - a. Install panels with pattern running in one direction parallel to short axis of space.
  2. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.

### 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.
- B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095113